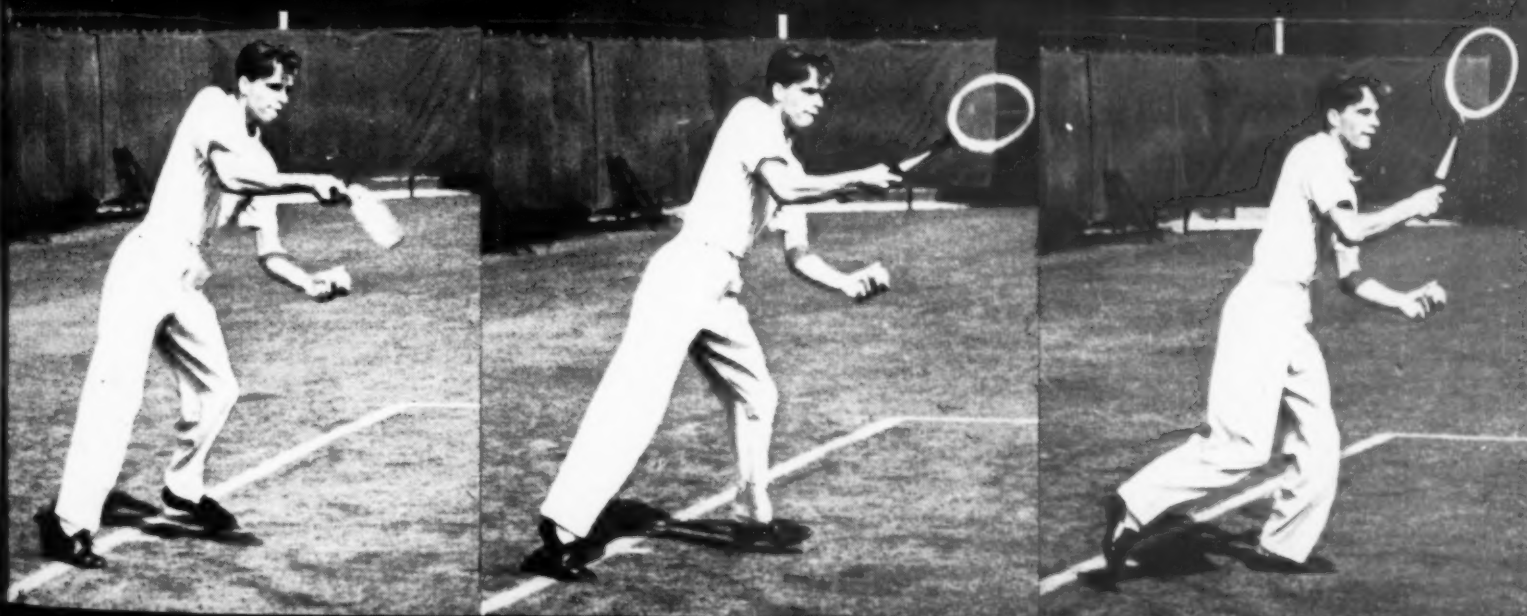
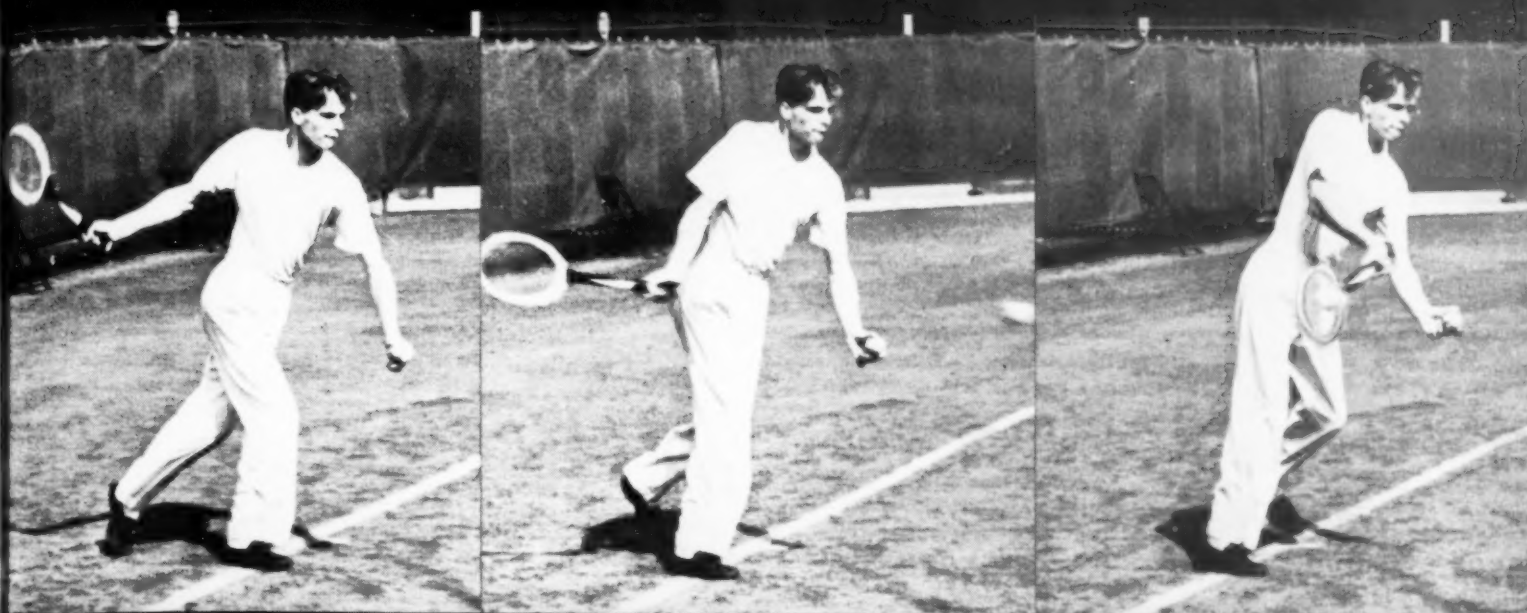


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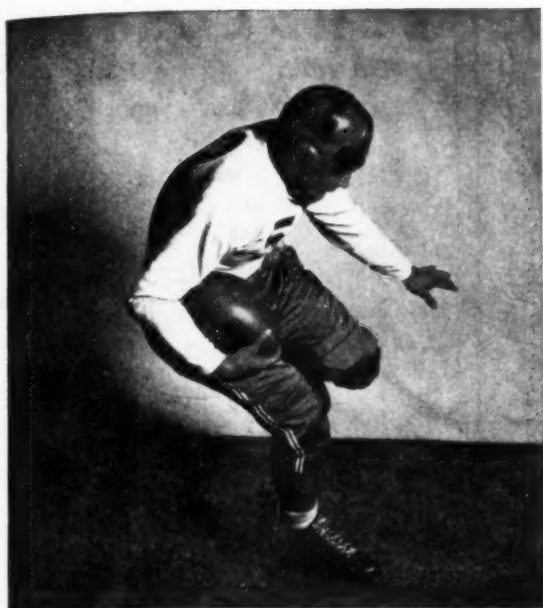


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- 2.** Then, two tablespoons a day. Take after game or practice period, preferably after shower.
- 3.** If an individual shows loss of weight, increase the feeding to two extra tablespoons a day.
- 4.** The recommended way to take the gelatine is in plain water (room temperature), or grapefruit juice, or grapefruit juice and water may be mixed 50-50; 4 oz. of water and 4 oz. of grapefruit juice. Pineapple juice may be substituted for grapefruit juice.
- 5. HOW TO MIX:**
 - (a) Pour onto the liquid 2 level tablespoons of Knox Gelatine.
 - (b) Let liquid absorb the gelatine.
 - (c) Stir briskly and drink before it thickens.



High speed photo taken in Spalding Research Laboratory shows Sid Luckman of the Chicago Bears. Copyright A. G. Spalding & Bros.

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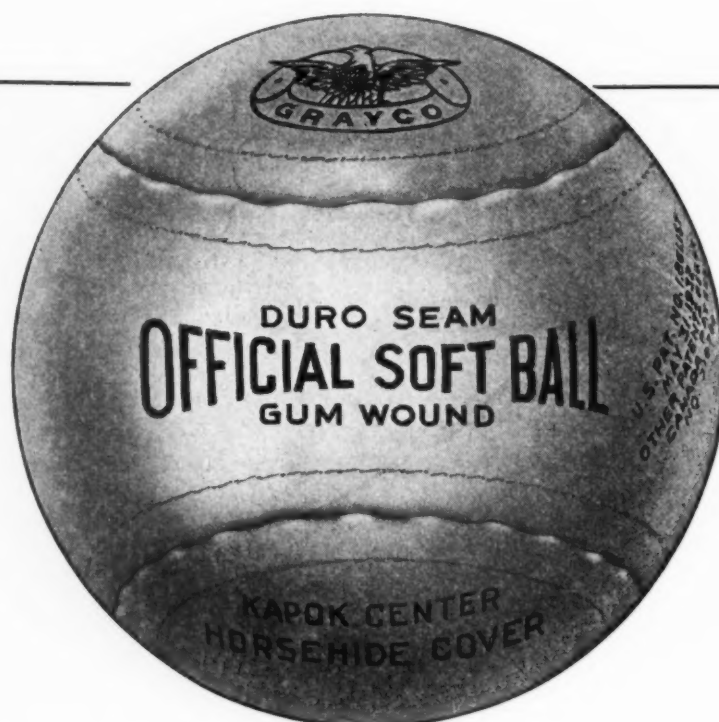
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THE PHYSIOLOGY OF ATHLETICS

V Training

MANY coaches have asked, “What differences in condition are there in athletes who are participating in different sports? They all follow approximately the same habits of diet, rest and exercise, and give evidence of being in top physical condition. Yet, when basketball players who can play a full game without undue fatigue, attempt to swim any distance they tire within a few minutes. Likewise, the swimmer, who can maintain a rapid pace over a long distance, is soon panting with exhaustion after a few minutes on the basketball court.”

The answer to this problem lies not in the factor of condition, but rather in that of training. The muscles of the basketball player and the swimmer may be equally strong, their blood equally capable of supplying food and carrying away wastes, and their lungs equally adept in furnishing oxygen and blowing off the carbon dioxide.

Still, athletes in such nearly identical states of physical condition will experience an earlier onset of fatigue in sports in which they are untrained and a prolonged onset of fatigue in sports in which they are trained.

Onset of fatigue

Fatigue is always due to the two factors: (1) accumulation of waste products of metabolism (fatigue toxins); and (2) depletion of energy yielding foods (glycogen, phosphocreatin). The onset of fatigue during exercise depends upon the rate and intensity of the work, and the frequency and duration of rest periods during the work.

The athlete trained for a certain sport prolongs the onset of fatigue by maintaining a certain degree of relaxation during participation. However, when he performs in another sport for which he has not trained, he endeavors to compensate for his lack of skill by tightening up in an effort to play harder. He thus reduces his rest periods to such a small extent that fatigue toxins accumulate faster than they can be removed and food supplies are exhausted.

A common characteristic among champions is the extraordinary amount of relaxation which they maintain even under stress. The

(Concluded on page 43)

National Fitness Demands ENERGY

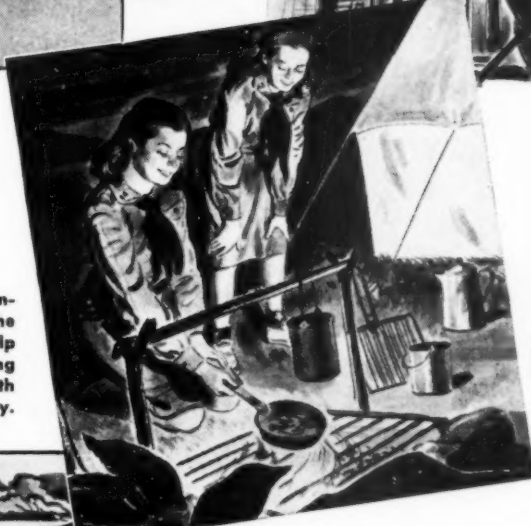


ACTIVE SPORTS that develop muscles, skill and courage require increased amounts of food-energy—sustained food-energy such as bread supplies.



A DIET built on a sound foundation of energy foods is important to national strength. For physical fitness is as important as skill.

A KNOWLEDGE of the important value of bread in the well-balanced diet will help the student of home-making to combine good eating with good nutrition and economy.



And BREAD is one of the best sources of Food-Energy



ABOUT 85% of the food children eat is used to supply them with energy! And modern diet authorities recognize that one of the best sources of food-energy you can give a child is wholesome, delicious bread or toast.

A HEALTH BULWARK for America is one of the most important aims of our drive to increase national strength.

More planes? More ships? Yes! But—just as vital—a well-balanced, nourishing diet for every man, woman and child.

Of the foods which supply food-energy needed for fitness, one of the best and cheapest is bread—the delicious, nourishing loaf made by the modern baker.

Bread is valuable not only because it releases *sustained* food-energy needed for endurance. Bread

made by the usual milk formula supplies high-quality protein for tissue building and muscle repair. It contributes valuable minerals, including calcium and phosphorus, and it is nearly 100% digestible.

Teaching our citizens of tomorrow that bread—so economical and easy to buy—is rich in wholesome nourishment will give valuable service in helping to promote good nutrition, so important for national fitness.

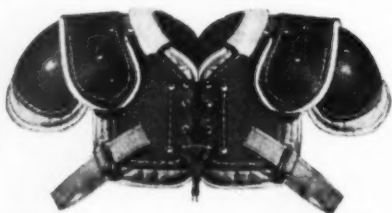
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O'Shea blocking pads are molded to fit the body with the utmost comfort and free use of rubber padding protects the vital points for additional comfort.



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EQUIPMENT FOR EVERY SPORT

LAST month we built what we believed was a rather neat man-to-man defense against the charges of certain professional carpers that basketball was "ruining" the health of the participants.

We admitted that the modern brand of ball looked amazingly fast from the press coop and that you couldn't lure us onto the court with all your promises of silver. But from a purely scientific viewpoint, there appeared to be no cause for alarm. Not a scrap of scientific evidence had yet been advanced that proved the game was dangerous.

So imagine our surprise the other day when we received the following communication from Dr. S. E. Bilik, the eminent doctor-author-conditioning authority. With such unscientific drivel as "athletic heart," "harmful action" and "ailing tickers" cluttering up the center of the court, we expected to find the doctor on our side of the floor. But, alas, he was parked on the opposite sideline.

In common with a number of distinguished coaches and educators, Dr. Bilik honestly feels the game is exacting too great a physiological toll.

Before commenting on certain debatable points in his argument, here is Dr. Bilik's letter *in toto*:

THE question as to whether blitzkrieg basketball is or is not potentially harmful to the participant vitally concerns the entire coaching profession. It has been definitely established—Lawson Robertson to the contrary—that athletic activity, however strenuous, cannot injure a normal heart; the athlete will collapse long before he can wreak any organic damage.

Yet I side wholeheartedly with a large group of observers who feel that the present game can do enormous harm.

Even cursory observation will show that the most highly conditioned college players cannot stand the gaff of a full game. Recently I saw Nat Holman's College of the City of New York team play Fordham University. The game was close and Holman was forced to keep his first string men in.

Near the finish three or four of the players were tottering; and when the game ended victoriously the youngsters slouched off the floor, apparently not giving a hoot about the outcome. They were dead—out on their feet.

Eighteen thousand spectators, another evening, saw Red Stevens of New York University collapse on a sideline chair after 15 minutes of play.

As many a college trainer will tell you, some college teams will lie stretched out on tables after a game too exhausted to dress.

Here Below

Granted that these boys have not done themselves any organic harm, what about the indirect potentialities? For one thing an utterly exhausted boy has no resistance to disease. Furthermore, if athletics are designed for fun and exhilaration, I question whether a game that leads to such absolute exhaustion is desirable. And may I say that basketball has been my favorite game ever since I learned to throw a ball through the hoop.

Every game in its evolution tends to increase in speed and complexity. In the process we often lose track of the limitations of the human body. We overlooked this vital factor in football and paid a dear price. Let us meet the same problem early in basketball.

In your March issue Mr. E. A. Thomas in his article, "How Strenuous Is Basketball?" presents statistics which show that high school players are actually on the go only eight minutes of a 32-minute game. Only those movements executed at a speed greater than a walk were considered.

The editors concluded that "our modern brand of ball is not the exhausting activity it's cracked up to be." They granted that it "exact[s] a greater physiological toll than the old game . . . but not sufficiently great to affect the players seriously."

In rebuttal, I offer the following: Under given conditions, favorable or unfavorable, our body possesses a certain amount of potential energy. Intelligently regulated training aims to assure the athlete the maximum possible energy for the contest. From the moment the boy succumbs to pregame excitement his muscles, and with them practically every other tissue, organ and system of the human body, go into a state of hypertonicity. Metabolism speeds up; the available fuel burns at a greater pace.

The game starts and whether the man walks, runs, stands still, passes, shoots, or plays the game from the bleachers the burning of this fuel proceeds at an ever increasing tempo. Surely no one who knows anything about matters physiologic will contend that a stationary player watching the scrimmage or following the ball is relaxed and that his metabolism has gone back to normal.

Metabolism doesn't return to nor-

mal until long after the final whistle has blown. The eight minutes of relatively speedy play are just that much more of a load. Even without these eight minutes basketball is strenuous enough to drain the participant of all his energy.

Doctors Fay and Messersmith of De Pauw University have shown that whereas in the old game a player covered about two and a half miles per game, he now covers over four miles and this at a constant breakneck pace. Anyone who drives a car will appreciate the significance of this. The greater the speed, the greater the rate of consumption of fuel. In basketball this leads to early exhaustion.

Another thing the writer cannot understand is the stress put on statistics. Does an experienced physician really need an x-ray to establish a diagnosis of a badly mangled arm, or of cancer, or of tuberculosis? Any intelligent, experienced coach can see that the modern game leaves his men exhausted. Why try to convince yourself that "there ain't no such animal?"

I believe that most physical educators are convinced that today's basketball is too taxing for five men to play, and that substitutions should be compulsory. Perhaps the evolution of the game is reaching the stage wherein it will have to be played by three sets of five men, or by a team of seven. The problem deserves the most careful study.

Finally, I would like to point out another factor of importance. Coaches, like all physical educators, thoroughly appreciate the importance of a good warmup. Yet in basketball time and again a "cold" substitute is rushed from the bench into strenuous play.

An athlete who has been sitting cramped, immobile and perhaps chilled is hardly in condition to fit smoothly into the teamwork. Physiologically an athlete cannot attain effectiveness until he has warmed up. This is as true in basketball as in all the other sports. Coaches should, therefore, make an effort to warm up a sub before sending him into the game. Perhaps the solution lies in permitting a substitute a full minute to loosen up and get his eye on the basket.

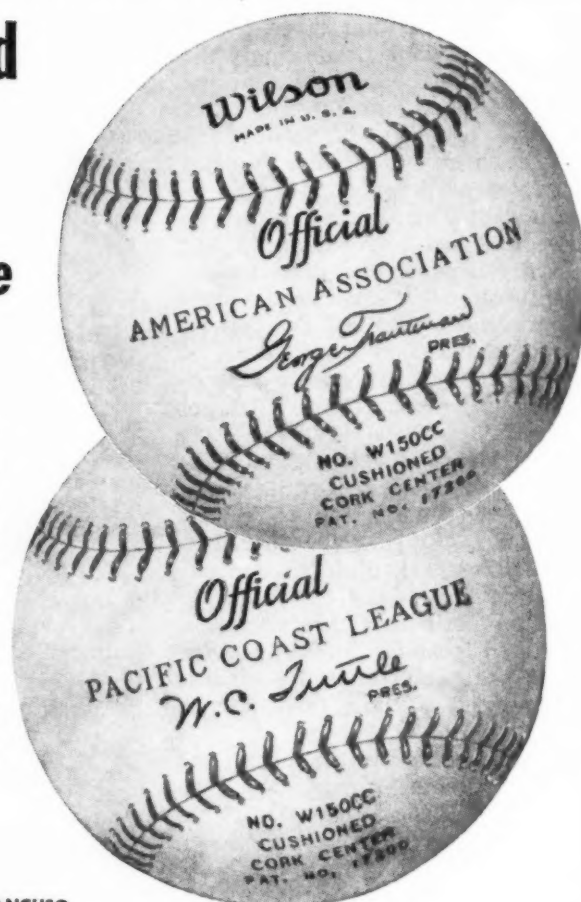
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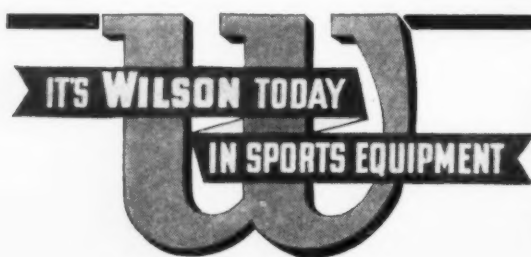


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THE STRATEGY OF INFIELD DEFENSE

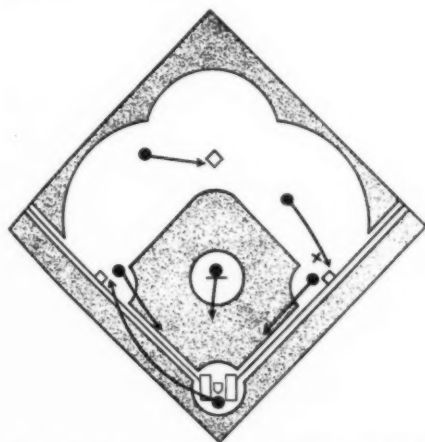
By Otto H. Vogel

Otto H. Vogel, a former major leaguer with the Chicago Cubs, now coaches baseball at the University of Iowa.

THE strategy of defensive infield play in baseball is predicated upon two things: first, to keep the batter from reaching the initial sack; and, second, to prevent him from advancing once he does.

The execution demands teamwork of the highest order. For only by working together as a unit can the infielders meet each challenge. This constant pooling of wits and skill is perhaps the most illustrious refinement of the game.

Like quarterbacks they jockey to meet each threat. They edge in, drop back or move to either side, always throwing strength to the focus of attack. Each infielder must be in the right place at the right



MAN ON FIRST, score close, nobody out: The play to look for is a bunt. The first and third basemen break for the plate, while the second baseman covers first and the shortstop second. If the bunt draws the third baseman well off his base, the catcher covers the open bag. With one out the infield always plays for two.

time and must know exactly what to do with the ball once he gets it.

While it is impossible to lay down an ironclad set of rules to cover every conceivable situation, these five points must continuously be kept in mind in setting up a defense:

1. The score.
2. The inning.
3. Number of outs.
4. Count on the batter.
5. Strength and weakness of the opposition.

Before outlining the deployment of the defense in several of the more

common game situations, it would be wise to dwell a moment on the normal positions of the players. Leaving aside such considerations as the speed of the infielder, the strength of his throwing arm, his ability to go to either side, the batter, and the type of pitch that will be delivered to him, the infield normally lines up as follows:

The first baseman deploys 10 to 20 feet off the base and 15 to 25 feet back of the line from first to second. The second baseman plays 10 to 25 feet off the base and from 15 to 30 feet back of the base line. The shortstop assumes the same relative position on the other side of the bag, while the third baseman plays 10 to 25 feet over towards second and 10 to 25 feet back of the base line.

When a double play is in the offing, the first baseman may take up anywhere from the base line to 15 feet back and about 10 to 25 feet off the bag. The second baseman edges in so that he can cover second quickly in case the ball is hit to short, and the shortstop moves in so that he can do the same should the ball be hit to second. The third baseman may take his position anywhere from the base line to 10 feet back and 10 to 25 feet off the bag.

For bunts, third and first play from the base line to 10 feet ahead, shortstop in position to cover second, and second baseman far enough over towards first to cover the bag if necessary.

When a run has to be cut off at the plate, the entire infield plays ahead of the baselines.

Following are examples of sound infield defense in a number of the more common game situations:

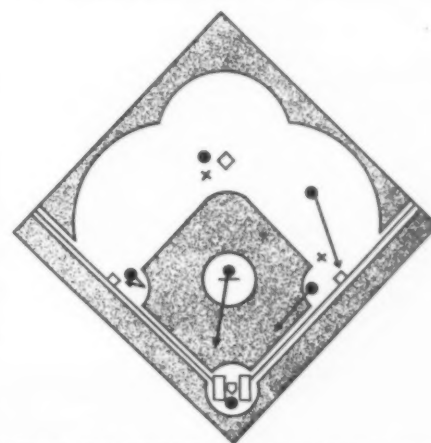
Man on first, score close, nobody out. The first baseman holds the runner on first, the second baseman moves over toward first to cover the bag should the first baseman go in for the bunt, the shortstop moves a bit closer to second to cover the bag if necessary, and the third baseman edges in toward the batter to play the bunt.

With one out second and short move into position for a double play, second to first. The third baseman moves back a trifle for the twin killing, while the first baseman holds the runner close to the bag. On the pitch he breaks off the base toward second.

Deployment of the players in several of the more common game situations

With two outs all except the first baseman play back for the hitter. The latter still keeps the runner anchored to first. The only exception to this rule is where the defensive team is ahead in the ninth inning and two are out. Here the first baseman moves back to his normal position and plays the batter, ignoring the runner. Before giving the first baseman this privilege, however, the defensive team should be more than two runs ahead.

When a double play is logical and the ball is hit to the first baseman's left, the fielder should make his play to first, especially if his throwing arm is weak. On plays to his right or directly at him, he should throw to second. But even here, if his throwing arm is poor, he should make the sure play at first.

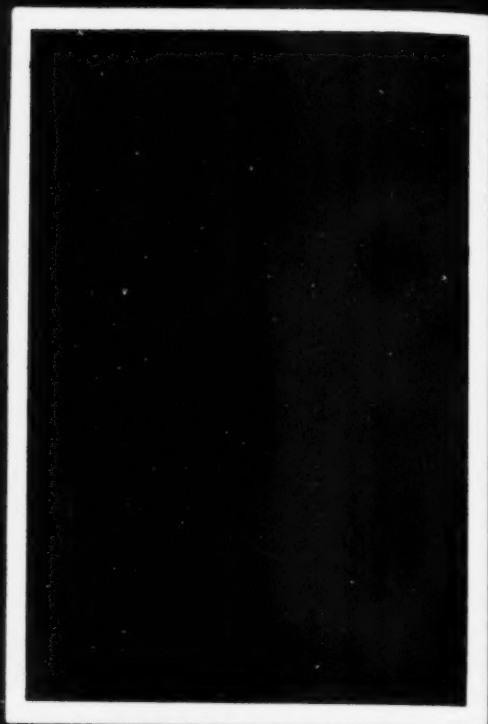
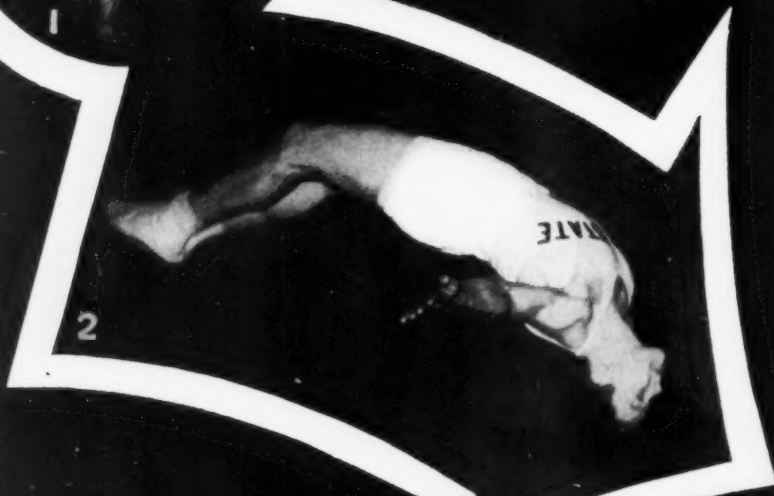


MAN ON FIRST AND SECOND, none out, score close: The enemy invariably will bunt. The play of the defense is a force-out at third. Unless it is impossible for the pitcher or first baseman to field the bunt, the third baseman covers his bag. Short holds the runner close to second while the second baseman covers first.

Man on first and second, none out, score close, and bunt expected. The defense sets up the same as with a man on first, except that the first baseman now plays in to cover the bunt. The runner on first cannot advance since second is occupied. The shortstop keeps the man on second close to the base, while the third baseman covers third each time the ball passes the batter, preventing the runner on second from stealing.

The idea here is to force the runner at third, with either the pitcher

(Concluded on page 42)



ADVANCED SCHOOLBOY TUMBLING

By Eugene Wettstone

The Penn State coach concludes his series with a few tips on forward and back somersaults

This is the third, and concluding, installment of a series of articles on high school tumbling by Eugene Wettstone*, varsity gymnastics coach at the Pennsylvania State College, whose team last year placed second in the National A.A.U. championships. Before coming to Penn State the author was the Big Ten all-around gymnastic champion (in 1935 and 1937) and a national intercollegiate champion (in 1937).

BEFORE venturing into advanced techniques, coaches should make certain the foundation skills have been thoroughly mastered; that is, hand-springs, cartwheels, front and back tuck somersaults.

Until the boys have absorbed these techniques and synthesized them into smooth-flowing routines, they should not be given a crack at the more formidable stunts.

These advanced skills may be grouped into three divisions: (1) forward somersaults — plain front with tuck, front walkout or one-two and front somersault with half twist; (2) back somersault—back tuck, back with layout, whip back, bounders, back with half twist, and back with full twist; and (3) Arabian tumbling — baroni, Arabian cartwheel and Arabian somersault.

Forward somersaults

The forward somersault with a one-two or walkout, as its title implies, is merely a regular front "sommy" with a modified finish. Instead of landing on both feet the athlete brings them down one at a time, thus enabling him to go into a walkover, roundoff or tinsica without the loss of speed.

The idea is to land in an erect position. As in the plain front tuck somersault a fast run, a good lift, a tight tuck and a fast spin are first essential. Then, just before the legs are let out of the tuck, they are shot toward the mat one ahead of the other.

Illus. 1 shows the tumbler landing in a walkout position with the legs nearly straight and the arms raised, ready for the next trick. This particular stunt is effective when used before a roundoff and a back routine.

*In Mr. Wettstone's first installment in February he presented his philosophy of coaching and a number of valuable suggestions on conditioning and safety. Last month he analyzed the five foundation skills: rolls, balances, springs, walkovers, and somersaults.

Pre-requisites for the forward somersault with a half twist are a fast run and a high forward somersault. After gaining height and turning halfway over, the right arm is thrown across the body and the head and shoulders snapped to the left.

The tumbler should be in a semi-tuck or near layout position. The more height gained, the easier the twist. At the completion of the twist, the head should be held back in the same manner as at the end of a layout back somersault. This will assure an upright landing.

A springboard and a lunge or safety belt should be used the first few times. The board supplies height and spin, enabling the performer to concentrate on twist. The belt is a safety measure which instills confidence. In adjusting the belt the ropes should be twisted properly around the performer so that at the finish of the somersault and twist they are unwound and straight out to either side.

A layout back somersault is one of the most graceful tricks in tumbling, and within the range of most capable and conscientious schoolboy tumblers. It can be easily executed from a fast roundoff or from a roundoff back handspring. As the arms are thrown up for the lift, the hips shoot forward and upward and the head back, giving the body an arch and swinging it up and around with the head as a pivot (**Illus. 2**).

The head and shoulders should be held high as the feet return to the mat so that the body will land in an erect position. Most beginners find it necessary to break the arch as the feet come down. However, with more speed and snap enough height will be gained to arch fully without breaking. Some coaches teach layouts off the diving board, where spring and added height facilitate movement.

The backward somersault with a whip back is used in doing alternate back handsprings, back somersaults or a series of fast back somersaults. It is executed fast and low, similar to a back handspring, to avoid loss of speed.

After a fast run and a roundoff back handspring, the arms and head are whipped back and the body snapped into an arch (**Illus. 3**). Halfway around in the somersault

the legs whip down to the mat and the landing is made with the upper part of the body inclined slightly forward but with the weight back in readiness for a back handspring or another whip back.

The bouncing or bounding back somersault evolves out of a round-off, with the arms and shoulders lifted for a fairly high but long back somersault. The body is tucked slightly and the feet shot suddenly downward. If the arm lift is correctly timed, the athlete may bounce into another somersault of this type.

Back "sommy" with half twist

Although the backward somersault with a half twist can be done with a tuck, a layout is preferred. The arms are thrown upward and over the right shoulder (when twisting to the right), and the head and shoulders turn. Most of the twisting is done on top when the body is completely inverted. The landing is made the same as in a high front somersault. Failure to land in an erect position may be due to premature twisting or to failure to lift at the beginning of the somersault.

Some boys at first have trouble getting their bearings, due to the unnatural twist. To get the feel of the movement they may first practice open somersaults with a quarter twist just before landing. By working into it gradually, they soon gain the confidence necessary to start the twist at the proper time. A belt should be used if necessary.

The pre-requisite for the backward somersault with a half-twist walkout is a high half twist with an erect landing. As the legs come down in spread position, a walkout is executed similar to that in the forward somersault (**Illus. 4**). If the legs are spread too soon a complete half twist is almost impossible, making it difficult to continue the routine straight down the length of the mat.

If the tumbler has trouble going into another stunt upon landing he may be holding back. A little more height and forward lean should help him continue without losing speed. The arms are held above the head as he lands, so that he can catch

(Concluded on page 35)



WHAT IT TAKES TO MAKE A PITCHER

By Al Mamaux

Al Mamaux is well qualified to write on any phase of the national pastime. After pitching superbly in the major leagues for ten years (Pittsburgh and Brooklyn), he went over to the International League as player-manager of the Newark Bears. Under his leadership Newark won successive pennants in 1932 and '33. At present he coaches at Seton Hall College.

SCHOLASTIC coaches frequently have asked me, "Can you 'make' a pitcher?"

My answer has always been the same, yes—with qualifications.

In my opinion pitchers are not necessarily born to serve on the mound. On the contrary, they are being developed every day of the baseball season.

Just as the highway contractor has a procedure for mixing the proper proportions of sand, gravel and cement to make a concrete roadbed so, too, has the experienced baseball coach a formula for developing pitching talent. He can take a young fellow with a little natural ability and develop him into a first-rate hurler.

In teaching the art of pitching* there are five clearly defined points of attention: the arm, legs, wind, fielding ability, and, the greatest of all pitching assets, control.

First of all, the candidate must have a good arm. Some fellows just naturally throw a ball with a loose, fluent motion which distributes the strain evenly over the body. Others, however, don't throw with their arms and shoulders at all. They crank the ball toward the plate with a jerky elbow motion.

These boys lack the fundamental ingredient of expert pitching; namely, a good arm. Nevertheless even they can be taught to throw properly.

This can be done by breaking down the pitching motion into its component parts; i.e., position of the feet, shift of the weight, full arm swing, roll of the shoulders, snap of the wrist, and follow through. By constant practice of these things a fellow with perseverance can learn to pitch a baseball easily and naturally.

At this point it would be well perhaps to describe the widely used "pump-handle swing" which has been adopted by virtually all major

league pitchers. The old round-the-head windups are practically taboo nowadays, chiefly because most baseball men now realize that it is a waste of energy and of no real value to the accuracy or speed of the pitch.

In teaching the "pump-handle swing" have the boy assume a comfortable stance with the weight on the left foot (for a right-hand thrower). The ball of the right foot should rest just over the edge of the rubber. The elbows are brought up even with the chin in a bent position. At the top of this swing the ball is clapped into the glove and the arms are allowed to swing loosely down to the sides. This promotes a rocking motion with a consequent forward and backward transfer of weight.

Paul Derringer

These graphic action pictures of the great right-hander, taken from the National League film, "Winning Baseball," offer an exceptional opportunity to study the mechanics of the arms, body and legs in pitching.

As you will observe, the Cincinnati veteran derives his effectiveness from a direct overhand style of delivery. He begins his windup by shifting his weight to the front foot; at the same time bending the trunk slightly forward and swinging the arms backward. The weight is then transferred to the rear foot and the body straightened. Meanwhile the arms are swung forward and the hands brought together overhead.

To add momentum and deception to the pitch, Derringer then tilts his weight back and kicks his front foot high in the air. The ball is released with a free, natural swing of the arm down at the batter.

Courtesy of Ethan Allen

After two or three of these so called "pump-handle swings" the hands are brought up over the head and the body pivoted to start the actual delivery.

I teach this type of windup exclusively to my pitchers. They find it easy to learn and an effective way of developing momentum for the pitch.

As further help to my pitchers, I have them slide their right foot off to the side of the rubber in a push-off position at the moment of delivery. This gives the pitcher a better purchase on the mound and a more secure toe hold than if he

made the pitch from the top of the rubber.

Second in importance to the arm is the possession of a sound pair of legs. Sturdy underpinning has kept many a pitcher in the big time long after his arm had lost its snap and cunning. To develop good legs there is only one prescription, and that is to run, run, run. Run the boys early in the Spring before they throw a ball. If their legs are in shape, their arms will round into shape much sooner than if you restricted your conditioning exercises merely to throwing.

Closely associated with good legs is good wind. Good wind means endurance and power—the ability to throw hard for nine gruelling innings without suffering the severe strain which overtakes a poorly conditioned hurler. Good wind and endurance will enable a pitcher to pound the ball into the catcher's mitt all afternoon. It will give him that confidence of reserve strength so essential to a top-flight pitcher.

Fourth in importance, as a vital part of every pitcher's stock in trade, is his ability to field his position. A good fielding pitcher like Fred Fitzsimmons of the Brooklyn Dodgers will make as many fielding assists in a game as any of the infielders.

Many a game has been lost because a pitcher neglected to handle a ground ball or a short line drive. Neglect in this respect causes the ball to travel the long distance to shortstop or second base, thus losing that fraction of a second which means the difference between out or safe, or getting one man or two.

There is only one way of learning this skill, and that is by practice. Every pitcher should practice fielding bunts, moving to the left and to the right, throwing from every possible angle, and running in for a slowly hit ball. In time they will develop an instinct for coming up with a sharply hit ball they may scarcely have seen.

Last, and of greatest importance to a pitcher, is the matter of control. Good control implies the ability to put the ball where you want it. At Seton Hall I instruct my young pitchers to fix a target in their minds before throwing the ball. They pick out a spot and fix the image clearly in their heads.

(Continued on page 40)

*Mr. Mamaux has compiled a very complete treatise on the subject of pitching, copies of which may be obtained by writing to him in care of Seton Hall College, South Orange, N. J.

EIGHTEEN HOLES WITH THE BEGINNER

By Hugh Ward

This is the first of a series of three articles on the proper use of the clubs in golf by Hugh Ward, well-known golfing instructor. The author uses a novel approach. He projects a story about an imaginary round of golf with an average beginner as its central character. The author follows him around (six holes at a time), pointing out his errors of judgment on the way. Mr. Ward is well qualified to write on the subject, having served as pro at three famous Eastern country clubs—Apawamis, Greenwich and Fresh Meadow. He has also conducted adult group classes at East Orange, N. J., and at present coaches the Poly Prep County Day School in New York City.

THROUGH his golf classes in the physical education or intramural program, the average schoolboy beginner golfer has a fairly good knowledge of the fundamentals. He knows how to grip the club, address the ball and swing; not flawlessly, perhaps, but adequately enough to start playing.

The most difficult thing he has left to learn is the use of the various clubs. He must learn which club will give him the right distance when playing the ball from an open fairway, which will get the ball out of sand and over a hazard and which is required to lift a ball out of long grass and back on the fairway.

I would suggest seven clubs for the beginner—two woods and five irons: driver, spoon, mid-iron (No. 2), mashie (No. 5), mashie niblick (No. 7), niblick (No. 9), and putter. The rest of the set may be filled in as the player improves.

The driver can be used from the tee; the spoon for the long second shot. It is much easier to get the ball out of close and cuppy lies with a spoon than with the straighter-faced brassie. The beginner may wait a while before playing with the latter club.

The mid-iron (No. 2), a very useful club, gives the average golfer around 165 yards. As the beginner has no No. 3 or No. 4 iron he may shorten up on the No. 2 iron when he needs the distance of these clubs.

The mashie or No. 5 iron can be used for shots from 130 to 140 yards. This club gives the ball plenty of rise and little roll when played properly.

The mashie niblick or No. 7 iron may be used for shots from 130 yards down to the edge of the green. The niblick or No. 9 iron is used for sand-traps and trouble spots and the putter, of course, only on the green.

Some of these things may be taught in the gym or the classroom. But the best place is on the course itself, where the beginner may learn by doing.

The purpose of this instructional unit is to show where the beginner will experience most of his difficulty. No effort will be made to tell how the clubs should be used; merely *where* along the way.

To make this as practical as possible, the writer is projecting a story about an imaginary round of golf in which the central character is the average beginner. The writer will follow him around, pointing out errors of judgment as they occur. A stroke-by-stroke map of the round accompanies the article.

The first hole is about 437 yards with traps on both sides of the fairway and rough to the right. A slight rise of the fairway toward the green necessitates the use of a slightly longer club than usual for the approach.

Niblick for quick rises

On this hole the player sliced his drive into the rough. Instead of using a niblick, which is a lofted club and gives the ball a quick rise, he chose a mashie. The error was one of inexperience. The player noticed neither the thickness nor the height of the grass in the rough.

After getting out, he made another error. He used a brassie from a very difficult lie when he should have used a spoon or a No. 2 iron. The distance to the green was so great that even a perfect shot would not have reached it.

The second hole is a sharp dog leg to the left. The proper way to play such a hole is to drive as close to the left as possible to cut off the distance of the bend. This is just an application of the mathematical truism that a straight line is the shortest distance between two points.

The player hit a good shot (see chart) but too far to the right. Another error that cost him a stroke was made on the third shot. After getting to the front of the green in two, he used the wrong club to get on the green.

The ground in front of the green was rough and undulating. Instead of pitching over it with a No. 9 iron or a niblick, he played a pitch-and-run with a No. 6 iron. Pitch-and-

A practical approach to teaching the proper use of the golf clubs

runs should be attempted only when the approach to the green is even.

The third hole also is a dog leg to the left, except that a long hitter can drive across the neck on the left and thus cut off many yards. The sketch illustrates this clearly.

The player drove off nicely and then pulled his second shot into the deep trap that guards the green on the left. Like most duffers, he tried to scoop the ball out with his niblick instead of depending upon the natural loft of the club to get the ball up.

The fourth hole is short but tricky. Beginners rarely notice the sharp break of the fairway from left to right nor the gentle break of the green from front to back and also slightly to the right. The rough is not so heavy and guards the back of the green.

As expected the player picked out a driver and smacked his tee shot over the green and into the rough. He erred in using too much club. A spoon, not a driver, should have been used.

For his second shot he swung his niblick as he would in heavy rough. The result was distressing. He caught the ball cleanly and dropped it forty yards back across the green.

He should have played the shot like an ordinary pitch: using a niblick and opening slightly both the face of the club and his stance, advancing the right foot. The club is gripped short and the shot is played entirely with the hands and arms. There is no body action or pivot. By keeping the body out of the short strokes, you are able to control your hands and the speed of the club head.

The fifth hole is 578 yards long—a par five. In addition to its length, the fairway is guarded on both sides by traps. On the left there is water as well; on the right woods and water. The green is guarded in front by three traps which run across the fairway about fifty yards from the green. Perfect execution is required on the approach.

The player's first shot went to the right just in front of the trap. His second traveled across the fairway up the left side. Then came trouble. On his next shot he sliced into the woods on the right. Instead of chipping out and taking his penalty, he tried to make up for his mistake by going for distance.

His case was hopeless, for the ball hit a tree and bounced still farther into the woods. Finally he chipped out; a sadder but wiser golfer. With admirable equanimity he swung again—and dropped his ball into one of the traps guarding the green.

On the sixth hole the tee is elevated and the fairway breaks away from the tee, sloping from left to right with woods on both sides and a deep pond center-right. So conscious was the player of these hazards that he made the natural, but fatal, error of looking up. He thus topped his drive, which rolled directly into the pond.

After being penalized a stroke and dropping the ball no nearer the hole, he got up just short of the green with a well hit spoon. On the approach he made the same mistake as on the second hole, when he used a pitch-and-run instead of a pitch with a niblick. This time, however, luck was with him. Although poorly

executed the approach just managed to dribble onto the green.

Etiquette of golf

The courtesies of golf should be taught along with the game. Some of the more important items of etiquette follow:

1. Don't move, talk, stand close to or directly behind the ball or the hole when a player is making a shot.

2. Allow the man with the honor to play before teeing up your ball.

3. Don't play a shot until the party in front is out of range.

4. After determining the result of a hole, leave the putting green immediately.

5. While looking for a lost ball, allow other players to pass. Then, having given them the signal, do not resume playing until they have passed and gone out of range.

6. Replace and press down any cut or displaced turf.

7. Carefully fill up all holes made in a bunker.

8. See that your caddy does not injure the holes by standing too close to them when the ground is soft or in replacing the flag-stick.

9. When incurring a penalty, inform your opponent of the fact immediately.

10. Play without haste, but also without undue delay.

11. When playing slowly, motion the player behind you to go through; it's the courtesy of the course.

12. Do not improve the position of the ball unless playing "winter golf" rules.

13. Count every stroke. *Earn* a low score.

14. Watch your shadow. Keep it off the line of play.

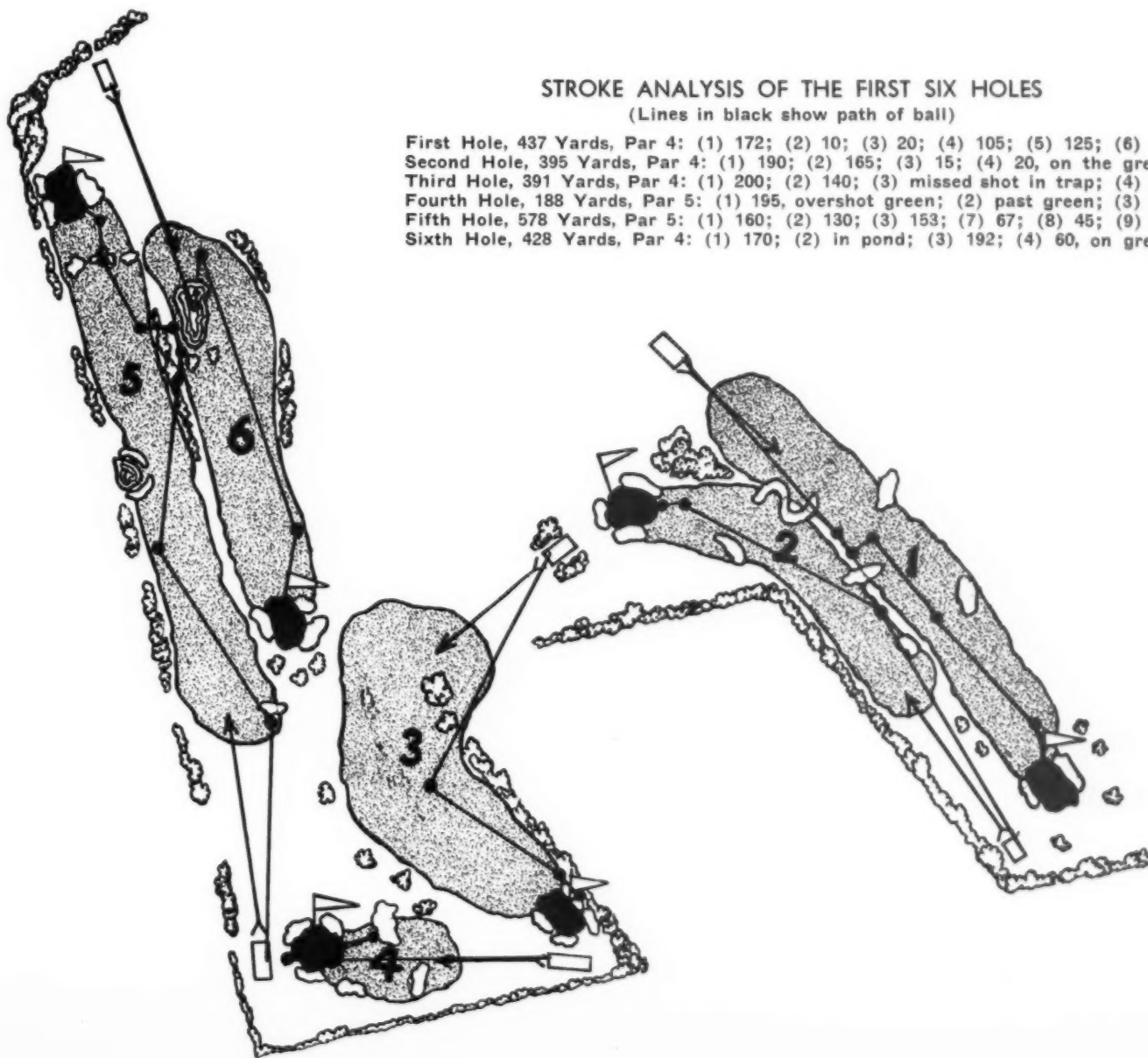
15. The player farthest from the hole should always be allowed to play first, even though he takes several strokes.

The next six holes will be covered next month.

STROKE ANALYSIS OF THE FIRST SIX HOLES

(Lines in black show path of ball)

First Hole, 437 Yards, Par 4: (1) 172; (2) 10; (3) 20; (4) 105; (5) 125; (6) on.
 Second Hole, 395 Yards, Par 4: (1) 190; (2) 165; (3) 15; (4) 20, on the green.
 Third Hole, 391 Yards, Par 4: (1) 200; (2) 140; (3) missed shot in trap; (4) on.
 Fourth Hole, 188 Yards, Par 5: (1) 195, overshot green; (2) past green; (3) on.
 Fifth Hole, 578 Yards, Par 5: (1) 160; (2) 130; (3) 153; (7) 67; (8) 45; (9) on.
 Sixth Hole, 428 Yards, Par 4: (1) 170; (2) in pond; (3) 192; (4) 60, on green.





DIET FOR THE TRACK ATHLETE

By Laurence E. Morehouse

Laurence E. Morehouse, of the department of physiology at the University of Iowa, conducts "The Physiology of Athletics" department that appears from time to time in *Scholastic Coach*. His article on diet for track introduces a series by him on diet and other conditioning factors in athletics.

ALTHOUGH the importance of diet in conditioning athletes has been recognized for years, its relationship to success in track has, until recently, been underestimated. It took a catastrophe to thrust home its moment.

The catastrophe in question was that which befell the 1928 United States Olympic team in Amsterdam. There is a general agreement among sports authorities that this team was one of the finest that ever represented this country. Yet, their performance was so poor that an investigation was made to determine the possible causes of their failure.

The trail led squarely to the pre-Games diet. In an account in the *New York Times* the chief steward of the steamship carrying them to Europe reported that the athletes had consumed large quantities of meat three times daily, and that in one day 300 athletes had eaten 580 steaks, in addition to many helpings of cereal and eggs!

Following this disaster, the track world awakened to the importance of diet as a conditioning agent. If further evidence was needed, the Japanese swimmers at the 1932 Olympics supplied it. The remarkable success of the Nipponese was largely attributed to their diet, which was carefully controlled by expert dietitians

So impressed were foreign ob-

servers that the Japanese dietary procedures before contests and between events were adopted by American and European coaches in nearly all forms of sports.

Since 1932 further light has been thrown on track diets, so that it is now possible to guide a squad's eating habits without calling in a dietitian.

The coach's problem is one of educating his team in the importance and principles of diet. The whole process of conditioning, including rest and exercise as well as diet, depends mostly on the athlete himself. Therefore, it is necessary for him to know how to get, and stay, in condition.

Many coaches have been getting good results with special classroom sessions devoted to the fundamentals of nutrition and other conditioning processes. These sessions are held early in the season, and are followed up with individual conferences on the specific dietary and other health problems of each team member. In many instances the athlete's mother and the school physician and dietitian are consulted in order to make certain adjustments.

In establishing the habit of good eating, certain principles must be observed. In general, the track athlete needs wholesome, well-cooked foods which are sufficient in quantity, quality and variety. An adequate diet will include protein for tissue building and repair, carbohydrates for energy, minerals for maintaining an optimum cellular environment, and vitamins for efficient bodily function.

The phase of diet having the

greatest bearing on performance is the diet the day before and the day of the meet. The general diet, although adequate for daily activity, must be supplemented and altered to meet the exigencies of competition.

Pre-contest diet

The principles of the pre-contest diet are:

1. Storage of a reserve supply of energy in the form of glycogen in the liver and in the muscle tissue.

2. Increase of alkaline reserve by the consumption of fruits and vegetables, which increase the potential alkalinity of the blood. This alkaline reserve helps neutralize the acids which are produced by muscular activity and which cause fatigue. (These fatigue acids have no relation to gastric acidity.)

3. Provision for the elimination of intestinal residues by supplying sufficient bulk to assure two or three normal bowel movements a day.

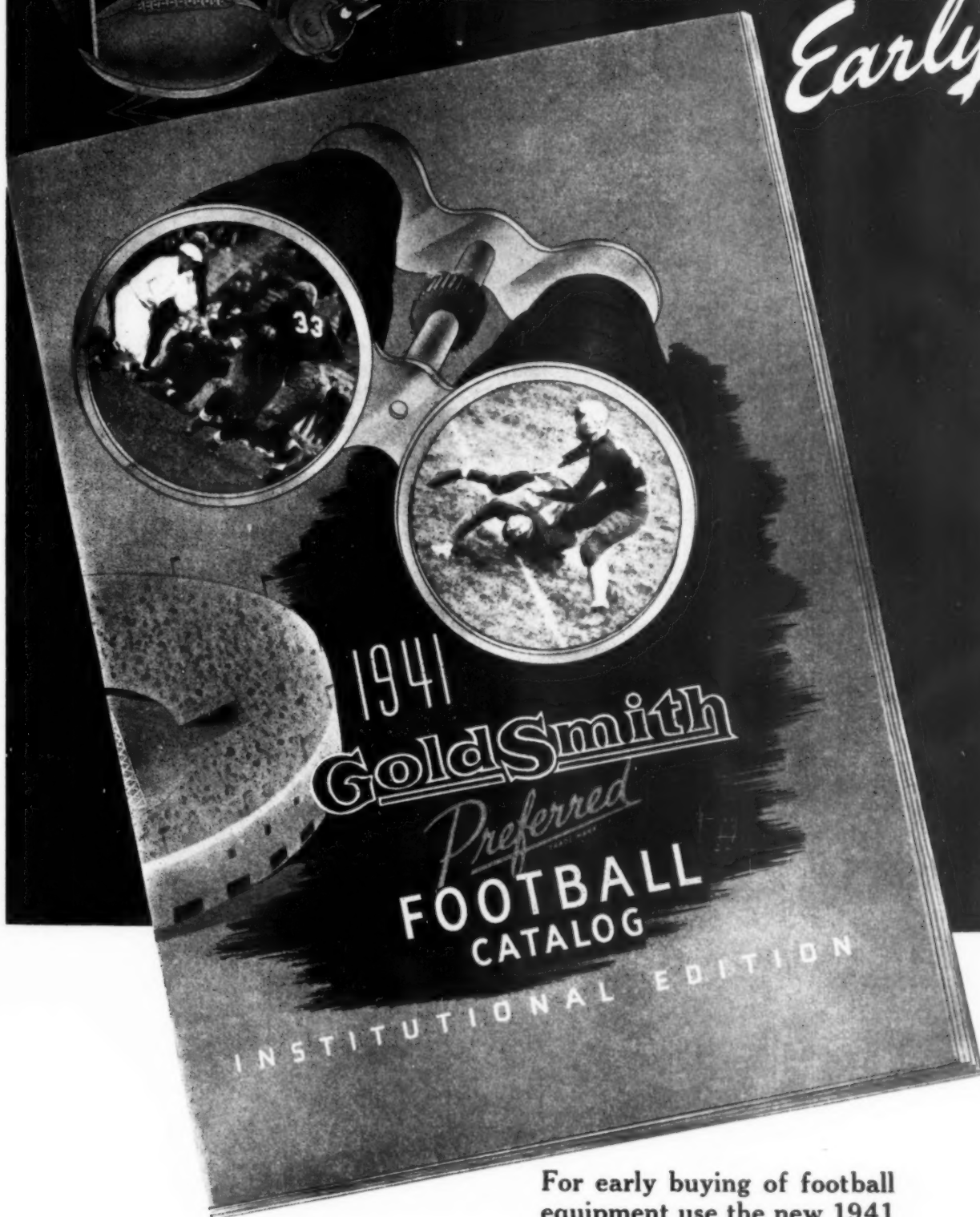
4. Exclusion from the diet of such highly acid-producing foods as fatty meats, pastries and fried foods. Also such stimulants as caffeine and alcohol, and such narcotics as nicotine.

Between events and following the contest, the athlete should replace the materials which have been used and excreted from the body. These replacements include the aforementioned glycogen and alkaline substances, and the salts and vitamins.

Proteins are needed for tissue building and repair. This is especially true where schoolboys are concerned, as they require fifty percent more protein than the adult.

(Continued on page 36)

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220-YARD DASH (around one turn)	21.4s. Eugene Goodwillie Chicago Univ. H. S., 1923	NO INTERCOLLEGIATE RECORD AROUND A TURN	NO WORLD'S RECORD AROUND A TURN
220-YARD DASH (straightaway)	20.7s. Jesse Owens East Tech., Cleveland, O., 1933	20.3s. Jesse Owens Ohio State, 1935	20.3s. Jesse Owens, U.S.A., 1935
440-YARD RUN (one complete lap)	48.2s. Herbert Morley Central H. S. (Columbus, Ohio), 1928	46.5s. Archie Williams California, 1936	46.4s. Ben Eastman, U.S.A., 1932
440-YARD RUN (straightaway)	48.2s. Frank Sloman Polytechnic H. S. (San Francisco), 1915	NO INTERCOLLEGIATE RECORD ON STRAIGHTAWAY	NO WORLD'S RECORD ON STRAIGHTAWAY
880-YARD RUN	1m. 54.4s. R. L. Bush Sunset H. S., Dallas, Tex., 1933	1m. 49.8s. Ed Burrowes Princeton, 1940	1m. 49.6s. Elroy Robinson, U.S.A., 1937 <i>See note below*</i>
ONE-MILE RUN	4m. 21.3s. Louis Zamperini Torrance H. S. (Calif.), 1934	4m. 6.7s. Glenn Cunningham, Kansas, 1934	4m. 6.4s. Sydney Wooderson, England, 1937 <i>See note below*</i>
TWO-MILE RUN	NO INTERSCHOLASTIC RECORD AT TWO MILES	9m. 2.6s. Gregory Rice Notre Dame, 1939	8m. 56s. Miklos Szabo, Hungary, 1937 <i>See note below*</i>
120-YARD HURDLES 3 ft. 3 in. hurdles	14s. Joe Battista Tucson, Ariz., H. S., 1939	13.7s. (Over 3 ft. 6 in. hurdles) Fred Wolcott Rice, 1940	13.7s. (Over 3 ft. 6 in. hurdles) Forrest G. Towns, U. S. A., 1936
200-YARD HURDLES 2 ft. 6 in. hurdles	22.1s. Don Pollom Topeka, Kan., H. S., 1938	22.6s. (Over 220-yd. course) Jesse Owens Ohio State, 1935	22.6s. (Over 220-yd. course) Jesse Owens, U.S.A., 1935 <i>See note below†</i>
RUNNING HIGH JUMP	6ft. 7 $\frac{1}{8}$ in. Gilbert La Cava Beverly Hills, Calif., H. S., 1938	6ft. 9 $\frac{3}{4}$ in. Melvin Walker Ohio State, 1937	6 ft. 9 $\frac{3}{4}$ in. Cornelius Johnson, U.S.A., 1936 David Albritton, U.S.A., 1936 <i>See note below*</i>
RUNNING BROAD JUMP	24ft. 11 $\frac{1}{4}$ in. Jesse Owens East Tech., Cleveland, O., 1933	26ft. 8 $\frac{1}{4}$ in. Jesse Owens Ohio State, 1935	26ft. 8 $\frac{1}{4}$ in. Jesse Owens, U.S.A., 1935
POLE VAULT	13ft. 9 $\frac{5}{8}$ in. John Lanta Mansfield, Ohio, H. S.	14ft. 11in. Earle Meadows, Univ. So. Calif., 1937 Bill Sefton, Univ. So. Calif., 1937	14ft. 11in. Earle Meadows, U.S.A., 1937 Bill Sefton, U.S.A., 1937 <i>See note below†</i>
12-POUND SHOT PUT	58ft. 10in. Elwyn Dees Lorraine H. S. (Kansas), 1930	56ft. $\frac{1}{2}$ in. (16-lb. shot) Al Blozis Georgetown, 1940	57ft. 1 in. (16-lb. shot) Jack Torrance, U.S.A., 1934
DISCUS THROW	174ft. 2 $\frac{1}{2}$ in. (special school discus) Howard Debus Lincoln, Neb., H. S., 1940	173ft. Kenneth Carpenter Univ. So. Calif., 1936	174ft. 2 $\frac{1}{2}$ in. Willi Schroder, Germany, 1935
JAVELIN THROW	219ft. Robert Peoples Classen H. S., Okla. City, 1937	234ft. 1 $\frac{7}{8}$ in. Robert Peoples Univ. So. Calif., 1939	253ft. 4 $\frac{1}{2}$ in. Matti Jarvinen, Finland, 1936
RELAY—440 YARDS	42.4s. Glendale H. S. (Calif.), 1928	40.5s. Univ. So. Calif., 1938	40.8s. Univ. Southern California, U.S.A., 1931
RELAY—880 YARDS	1m. 28.2s. Polytechnic H. S., Los Angeles, 1931	1m. 25s. Stanford, 1937	1m. 25s. Stanford Univ., U.S.A., 1937
RELAY—ONE MILE	3m. 21.4s. Hollywood H. S. (Calif.), 1929	3m. 10.5s. Stanford, 1940	3m. 11.6s. Univ. Southern California, U.S.A., 1936
RELAY—TWO MILES	8m. 5.5s. Roosevelt H. S., Des Moines, 1938	7m. 37.7s. Stanford, 1940	7m. 35.8s. National Team U. S. A., 1936

○ Approved by National Federation of State High School Athletic Associations.

● Approved by National Collegiate Athletic Association.

■ Approved by International Amateur Athletic Federation.

*Taisto Maki of Finland did an 8m.53.2s. two miles in 1939, before the war started—which the I.A.A.F. hasn't been able to pass on owing to international complications. Greg Rice's 8:51.1 mark on March 22, 1941, will never be recognized as a world's record, as it was run indoors.

†Fred Wolcott of Rice owns a 22.5s mark for the 220-yard low hurdles upon which the I.A.A.F. will act when and if they meet again.

‡Another record awaiting I.A.A.F. action is Cornelius Warmerdam's amazing 15 ft. $\frac{1}{8}$ in. pole vault last Summer.

* Glenn Cunningham ran a 4m. 4.4s. mile, the fastest in history, on March 3, 1938, on the Dartmouth College indoor board track in Hanover, N. H. While this record was accepted as an American indoor mark, it was not accepted as a world's record by the I. A. A. F. because the international body does not recognize indoor marks.

† Four years ago at Stockholm, Sweden, Melvin Walker of Ohio State high jumped 6 ft. 10 in. to better a mark of 6 ft. 9 29/32 in. which he had created earlier in the same week. Neither his two record-breaking attempts nor his accepted intercollegiate record which ties the world mark, were given consideration by the I. A. A. F.

‡ On the Dartmouth College indoor board track on March 14, 1940, John Woodruff raced 880 yards against a handicapped field in 1m. 47.7s., 1.5s. faster than the outdoor mark for which Sydney Wooderson has been awaiting official credit for three years.

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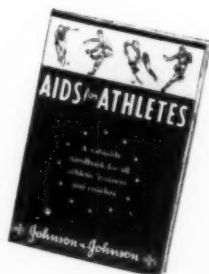
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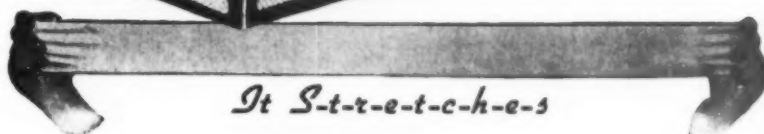
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A SYSTEM FOR TEACHING TENNIS SKILLS

By Frank Haas

Frank Haas coaches tennis at the Evanston, Ill., Township High School.

GENERAL principles of advanced tennis techniques have in the past year been well defined by the United States Lawn Tennis Association in their publications. The purpose of this material has been to develop, according to a fairly clear-cut pattern, the American internationalists of tomorrow.

These pamphlets are available at a nominal cost to anybody fortunate enough to know about them. The specific means of teaching these tactics, however, is left to the ingenuity of the coach. How, then, may the essential techniques best be taught?

The author's answer to this question is contained in the accompanying diagrams, which represent his system of teaching interscholastic players. The plans assume that the boys are more or less advanced players.

Obviously, in all purposeful practice, actual game situations should be approximated as nearly as possible. If a particular response is desired by a player in a definite game situation, the identical situation must be present in his daily practice.

Emotional control, which is exceedingly important in successful tennis, can also be acquired through proper practice procedures.

The teaching techniques described here are piecemeal only to the extent of concentrating practice on the desired skills. In every instance all the players are directly engaged in a practice technique specifically designed to teach court strategy and to develop skills which tie up directly to some purposeful part of the game.

Emphasis is not put on a continued rally and the decision of a point. The successful accomplishment of the stroke being practiced is the major concern of the player, especially if he understands just how the stroke ties up advantageously with his entire game.

Although tennis coaches vary in their attitude, convictions and personal likes the same as other coaches, they probably come closer to believing in the same general tactics than do football or basketball coaches. This is probably because the game has not materially changed in the past generation in either rules or tactics.

The generally accepted strategy

for both the singles and doubles games, such as briefly follows, is emphasized throughout the accompanying teaching methods.

Singles. Occasionally follow service into volleying position after serving to opponent's forehand or backhand, whichever is weaker. Go to the net whenever opponent's shot is such that you can return it deep and get into a volleying position well in front of the service line, before the ball is returned.

When attacked return the ball low at opponent's feet if he is not too close to the net; try passing shot, drop shot or a deep lob as a counter attack. The service should be returned with the idea of weakening his court position. Maneuver the opponent at the baseline to complicate his timing and body position, facilitating errors and opening a way for a "put away" shot. Some lobs can be "killed" with overhead smashes; others may be blocked for placement.

Doubles. Serve to opponent's forehand or backhand, whichever is weaker, and follow into volleying position with partner. Return opponent's service low at intruding server's feet or occasionally with a deep lob.

Go to the net whenever the opponent's shot presents an opportunity

Six purposeful lesson plans on the technique of singles and doubles

for a deep return and a chance to get into a volleying position before the ball is returned. When attacked return the ball low at the opponents' feet if they are not too close to the net; try a passing shot or a deep lob as a counter attack.

As in the singles smash every lob that can be "killed"; others may be blocked for placement. The center of the court is generally the spot on which to concentrate.

Although, on the opposite page, only Diag. 2 is specifically designed for doubles practice, the three subsequent plans may be adapted for doubles by deploying a team in the developmental positions.

Diag. 3

A singles player, 1, standing behind the baseline, starts the rally by hitting the ball to the opponent's midcourt. Opponent 2 returns the ball deep and follows into volleying position. 1 then tries a low shot over the center of the net, a passing shot, a drop shot, or a deep lob. The rally continues until an error or placement is made. To increase the efficiency of the drill, three players are stationed on the attacking side to follow one another after the rally is completed. The retriever, 5, on the starting side, rotates with 1 at the coach's discretion.

Diag. 4

A singles player, 1, standing at the baseline, starts the rally with a deep shot to his opponent, 2, in the backcourt. The latter then tries a passing shot, drop shot or deep lob against player 3, who is in volleying position on the other side of the net. The rally continues between these two players until an error or placement is made. The three players change positions at a signal from the coach.

Diag. 5

A singles player, 1, standing at the baseline, starts the rally with a deep shot to his opponent, 2, and follows into volleying position. The receiver lobs the return and 1 smashes or blocks for placement, depending on his proficiency and the type of lob. Three players take turns on the smashing and blocking side of the court while two retrievers are deployed on the opposite side. The lobber and the retrievers switch places at the discretion of the coach. In adapting the singles teaching methods in Diags. 3, 4 and 5 for doubles, it is advisable to use a team instead of a singles player in the developmental positions.

Diag. 6

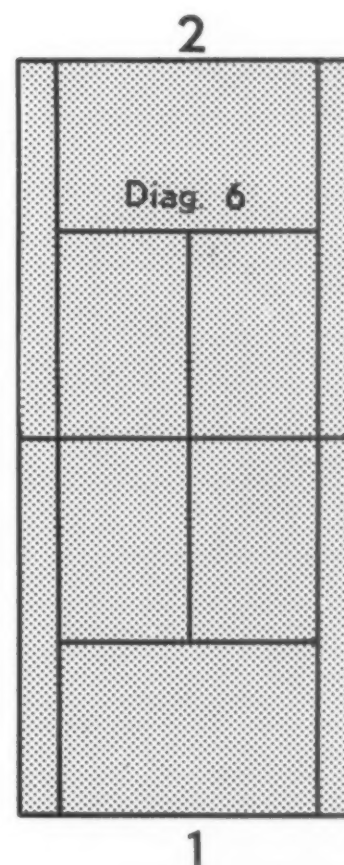
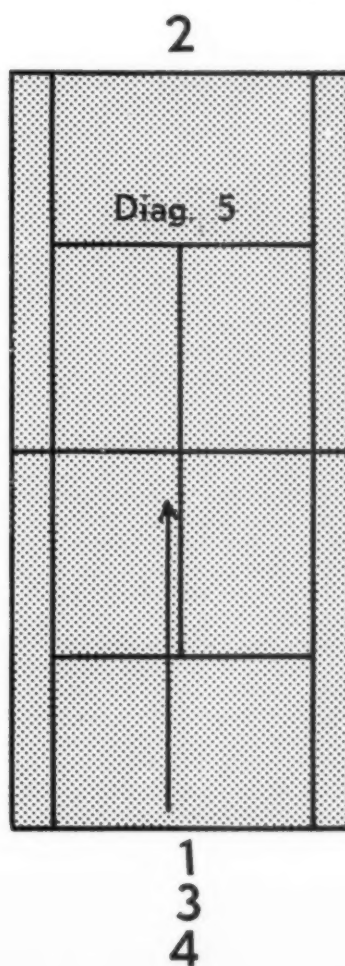
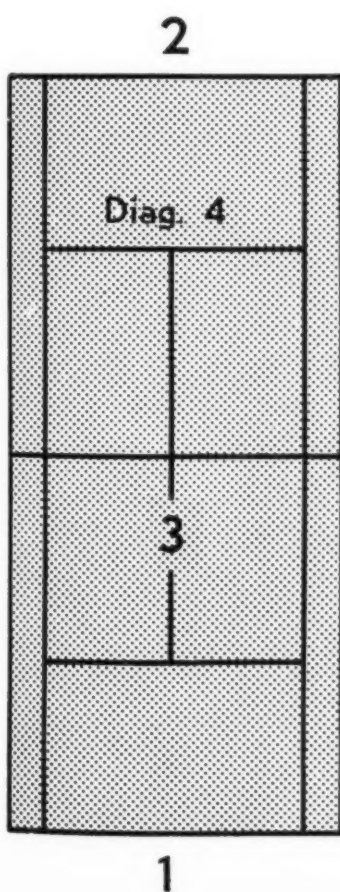
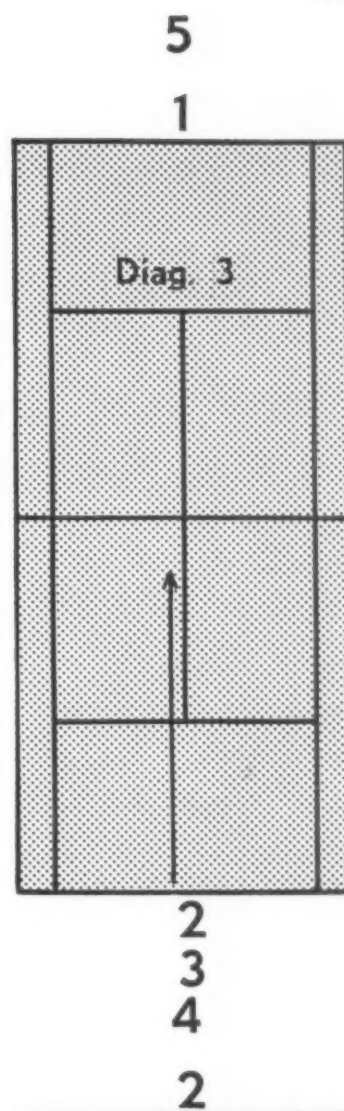
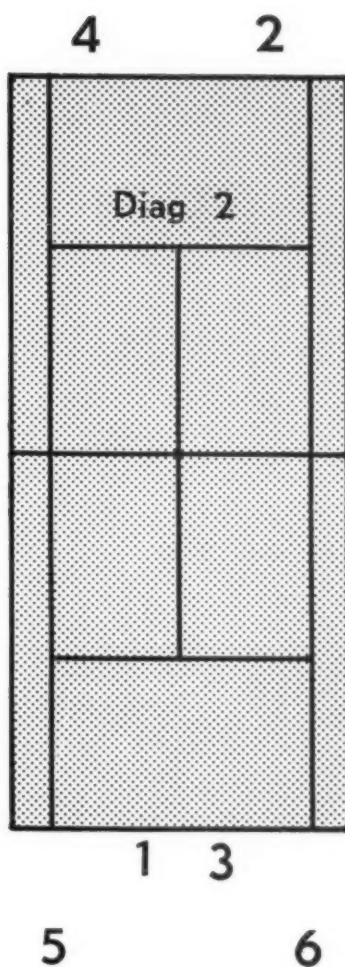
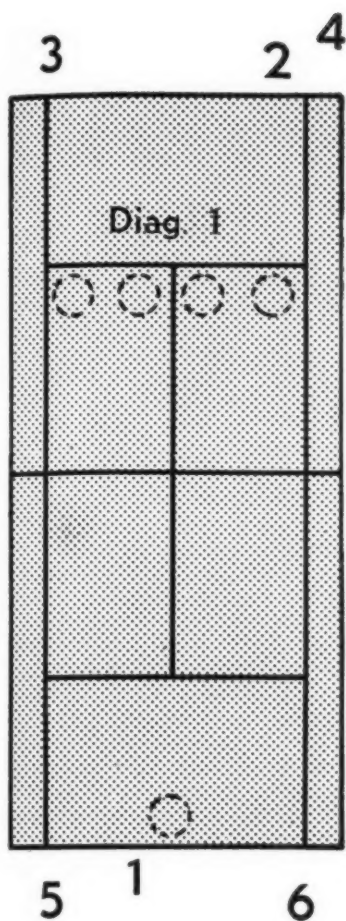
The rally is started with the players in the backcourt, and continued with both players alternately hitting toward the sidelines. The idea is to maneuver the opponent at the baseline to complicate his timing, thus forcing him into errors or creating an opening for a "put away" shot. The rally continues until an error or placement is made.

Diag. 1

The server, 1, stands in his regular position and aims his serve at a target in the forehand or backhand part of the opponent's court. If the service is good the receiver, 2, attempts to return the ball to a target near the baseline, just in front of the server's feet. That's all the rally consists of—the service and the return. Each player serves about fifteen balls before exchanging positions with one of the retrievers (5 and 6). Two retrievers (3 and 4) are stationed on the receiving side and take alternate turns at receiving, shifting with the servers. Ordinary discarded bicycle tires, painted white, may be used as targets. A good supply of balls should be available to minimize the time lost in retrieving.

Diag. 2

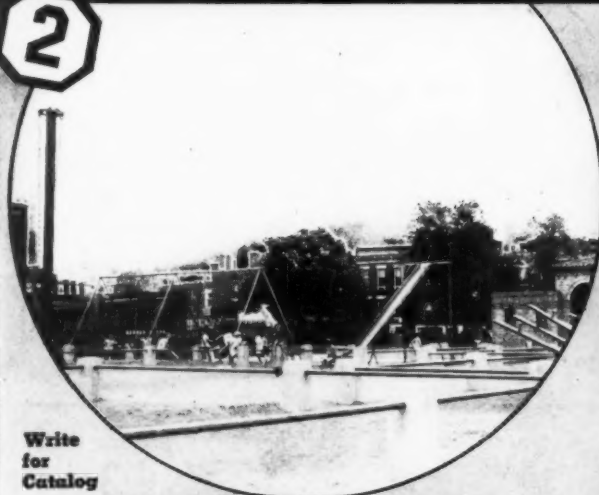
Singles and doubles players are paired off four to a court. The server (1 or 3) stands in his regular position and serves only one ball to the receiver's (2 or 4) forehand or backhand as designated by the coach. If the service is good the receiver returns the shot to an area indicated by the coach and the rally is over. For doubles practice, 1 and 3 follow the service into volleying position and volley the opponents' cross-court return deep to the center of the court—ending the rally. The service and receiving positions are rotated at the coach's discretion.



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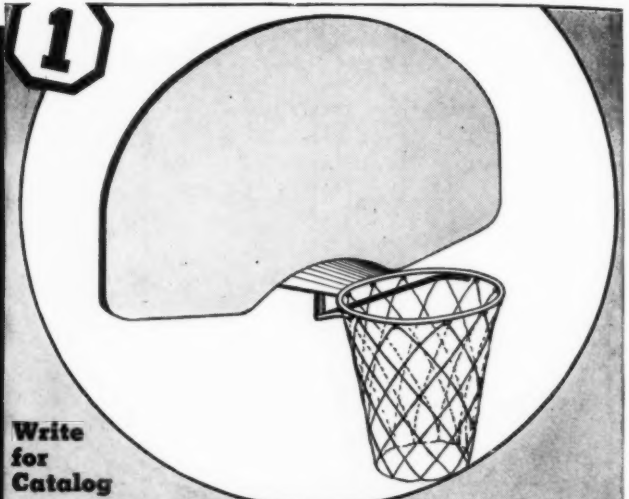


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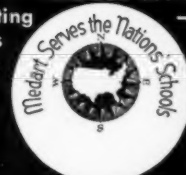
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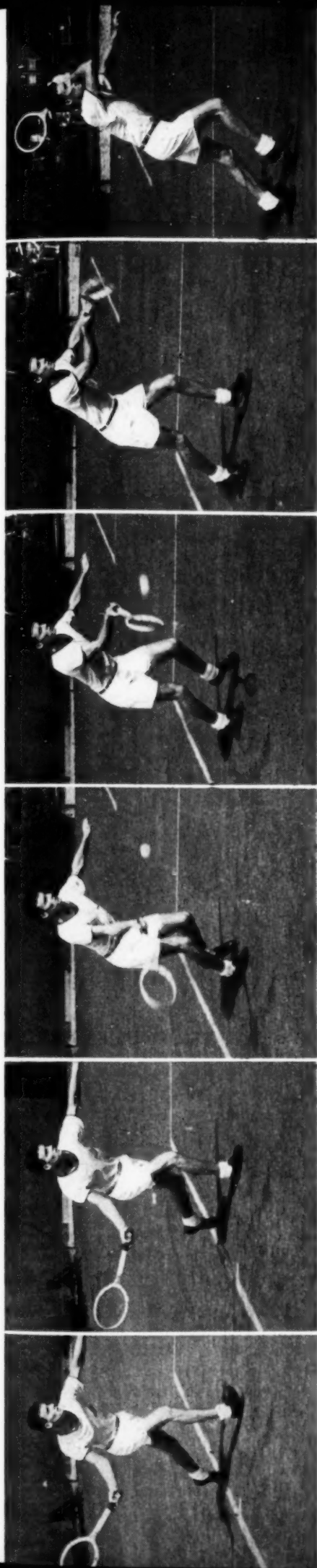
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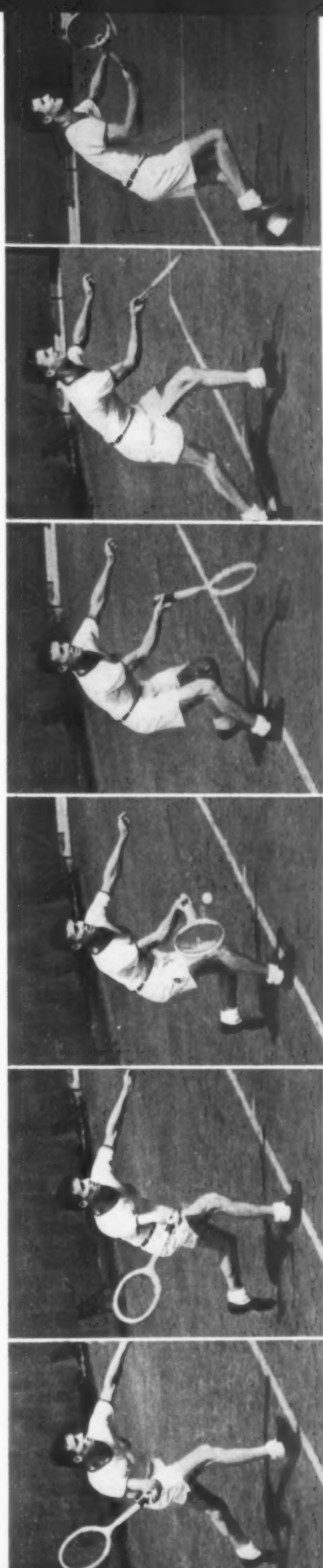




TED SCHROEDER, co-holder with Jack Kramer of the national doubles championship, demonstrates, in actual game shots, two running forehand strokes. In both the running flat-hit forehand (above) and the running sliced forehand (below) the player is making a forcing shot, both of which he must follow up to the net for a possible kill of the return or be trapped in mid-court by a return shot to his feet or be passed by a shot to either side. In the pictures above Schroeder has been able to approach the ball at a slight angle, allowing him to make a fairly free stroke. In the fourth picture the ball has been hit and is going away from the racket. The

THE RUNNING FOREHAND

racket face is vertical, showing that very little or no top-spin was put on the ball. The pictures indicate that Schroeder is "sliding" the stroke, imparting side-spin, causing the ball to bound to the opponent's left. In the pictures below (the sliced running forehand) Schroeder's opponent has been pulled out of position. Schroeder has elected to give him a sliced forehand shot, with its short carry and low bounce. It will bring a return which Schroeder can volley for a winning point. The sliced forehand is a forcing shot only when the opposing player will have difficulty getting to the ball in time to make a strong return.



HIGH HURDLING TECHNIQUE

By W. T. "Ted" Swenson

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W. T. "Ted" Swenson is assistant track coach at the University of Iowa.

CHAMPIONS of so many sizes and shapes have crossed the track horizon that coaches, in cataloguing their runners, ordinarily pay little attention to physique.

Perhaps the only track event in which a definite type of athlete owns an advantage is the high hurdles. The schoolboy athlete must clear ten 39-inch hurdles over a course of 120 yards. The longer his legs, naturally the better equipped he is to do this.

Hence, in sifting his prospects for potential timber-toppers, the coach would do well to look for tall, supple boys with exceptional speed on the flat. Hurdlers like Forrest Towns, Ed Dugger, Fred Wolcott, and Allan Tolmich are capable of holding their own with many of the top-notch sprinters.

In the early days most hurdlers went over the barrier in spread-eagle fashion, with both arms outstretched to the sides. Instead of throwing the front leg straight at the hurdle, they crooked the member almost parallel to the obstacle. They made a beautiful picture floating through the air. But they didn't go places very fast.

Once the fancy crook at the knee was abandoned, hurdlers really started moving. Kelly, Simpson and Nicholson ushered in an era of phenomenal clocking. They went over the barrier with the lead foot almost straight out in front, the arms thrust forward over the hurdle and the body bent at the waist. The chest rested almost on the knee of the lead leg.

All this is considered standard form today. The high hurdler still must clear the obstacle by the slimmest of margins; stay in the air a minimum of time; land in sprinting position; and, despite the barriers, keep moving forward at a steady clip.

There is no royal road to success. The problem involved is that of eliminating every trace of waste motion. This takes work, work and more work. The high hurdler must work harder, perhaps, for perfection of form than any other runner.

The majority of hurdlers, whether running over the 42-inch college or 39-inch high school barrier, take eight strides to the first obstacle—

although a number of good college hurdlers take but seven.

The first fifteen yards of the race is a sprint. The athlete runs as fast as possible, with his body under control for the drive over the first hurdle.

A boy who is relatively short, or who has a short stride, may find it advantageous to use eight strides or even nine, especially in schoolboy competition. He may sacrifice speed if he takes less.

The taller man usually gets better results with seven or eight strides. But in either case, where boys are having trouble generating speed, it may help to reverse feet and take an extra step.

Most hurdlers take off six to seven and a half feet from the first hurdle. Since the "cut down" on the other side ranges from four to five feet, an average leap covers approximately eleven to twelve feet. A few hurdlers, however, have taken off from as close as six feet with a "cut down" of about four feet.

The boy should copy the action of sprinters as much as possible; running or driving, not jumping, over the barrier. The head should come up only slightly as he drives for his target, with the take-off leg slightly bent, not rigid.

Types of arm thrust

Insofar as the action of the arms is concerned, either of two styles are acceptable: the single or the double arm thrust. Many good hurdlers use both methods, but the double thrust generally is preferred.

In this style the hurdler thrusts both arms out in front as the lead leg drives over the hurdle. The fingers of the hand opposite the front leg are extended at least as far as the toe of that leg. Many hurdlers carry the hand even farther.

In the single arm action the arm opposite the lead leg is carried the same way. But the other hand is kept close to the side as a balancing agent.

Whichever technique is used, the arm on the side of the lead leg definitely assists in pulling the hurdler down to the ground. The jab is hard, and close in, to assist the back muscles in bending the body forward and to help lower the trunk over the front leg. The hand is kept a little wider than the elbow.

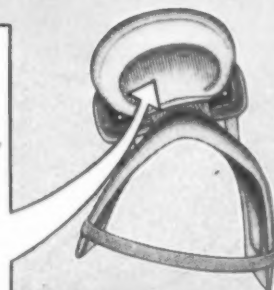
(Continued on page 26)

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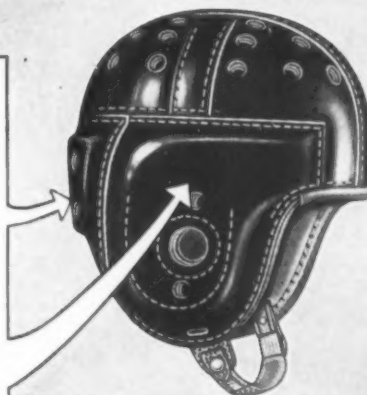


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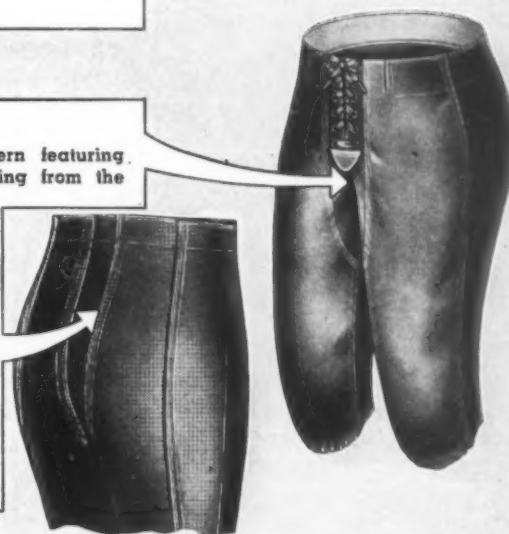
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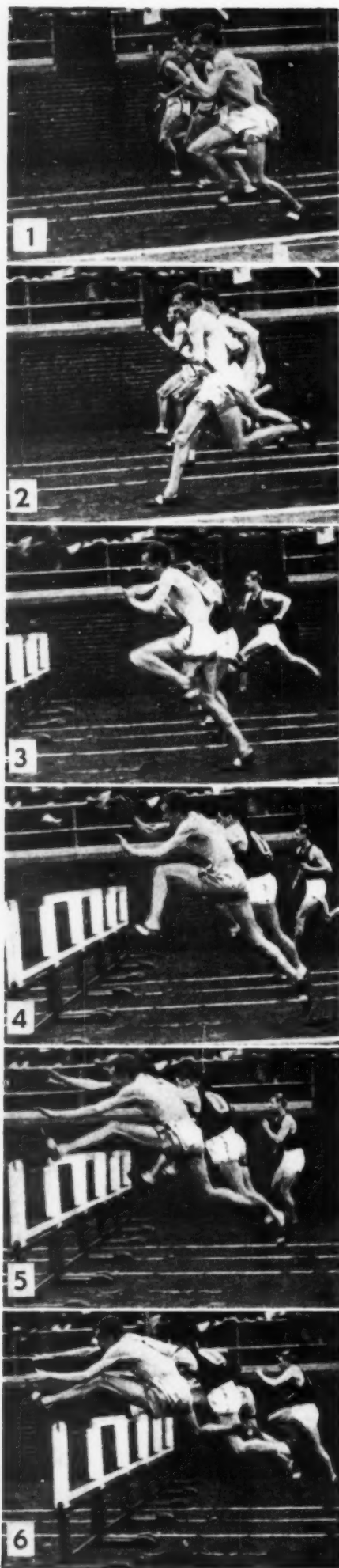
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As the lead arm comes back, it also stays fairly close to the side, much the same as in sprinting. Many athletes err in thrusting the lead arm up high in front when it should be kept low, somewhere near the toe of the front leg.

Some hurdlers, once over the barrier, have a bad habit of hurrying the back, or trailing, leg. When this leg is hurried over, the trunk has a tendency to straighten up too fast. This elevates the body and pulls the back knee forward and upward, forcing the foot down. The foot should be allowed to follow through easily and naturally.

In bringing back the "off" arm—the member which does not lead—the middle of the forearm should be about even with the side of the body. Some good hurdlers carry this arm slightly farther back.

Upon landing, the hurdler should be in a running position with the trunk slightly forward and the arms pumping vigorously. He should not be distracted from the barrier in front of him by the movements of the men on either side. To watch them is fatal. After the last hurdle the race resolves into a sprint. Every energy must be bent towards the finish line. This often is a neglected phase of the event.

Warm-up exercises

Before attempting to hurdle the athlete should take a thorough warm up. For a starter he may jog for about five minutes in his warm-up garments. He may then stride a quarter mile in about 65 seconds, running the last 100 yards with a high-knee action and pounding the ground.

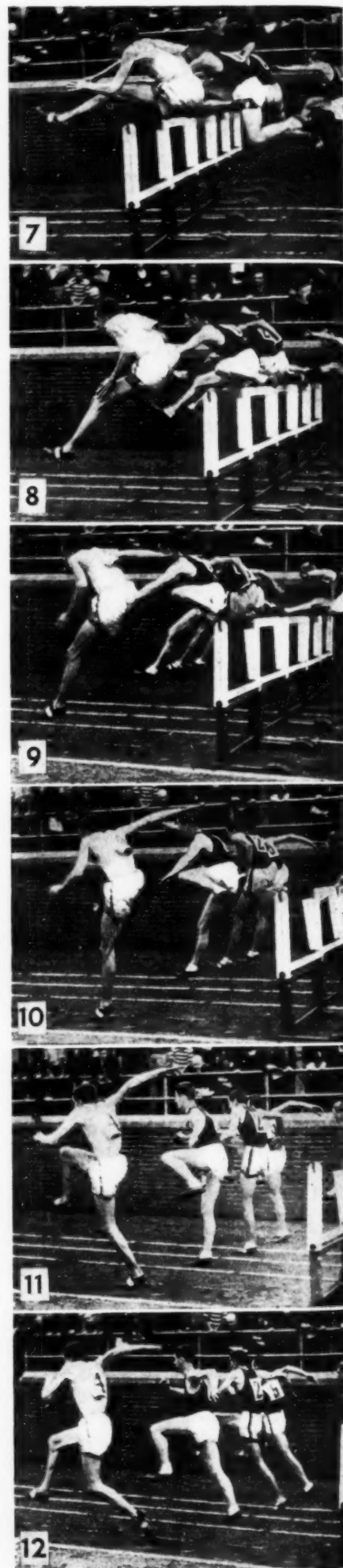
Stretching exercises may then be taken on the grass. To warm up the muscles of the back, leg, shoulder, and hip it is necessary to assume the approximate position on the ground as when in the air directly over the hurdle. The athlete reaches forward with the lead hand and stretches so that the wrist is about even with the toe of the opposite foot.

This exercise may also be done in pairs. Taking the same positions, the boys grasp hands and help each other in the execution.

In another exercise the hurdler stands in a crouched position and swings the arms from side to side with the fingertips just brushing the ground.

Inverted running, or "riding the bicycle," is another good practice suggestion.

After these preliminaries the boy may take his position at the hurdle.



Standing at a side on one leg, he swings the other leg rapidly over the barrier, being careful to keep the toe clear of the hurdle. For further practice on this fundamental, he may sit on the ground in hurdling position and raise and lower the toe 30 or 40 times.

The athlete is now ready to warm up over the hurdles. Here many of the best athletes use five steps between barriers, instead of the orthodox three. More attention to form can be paid in this manner, as speed is greatly reduced.

Another helpful practice device is to place the hurdles thirteen yards apart and again use five steps. This allows the hurdler to drive slightly harder than when the barriers are spaced at the regular ten-yard intervals, but still not so vigorously that he cannot pay attention to the correct arm and leg action.

Some coaches feel that five-step hurdling should not be used during the competitive season, as it does not approximate the form used during actual competition. But there is much to be said for this drill as an aid to the correction of form defects.

The drill may also be used to teach the double arm thrust; the hurdler grasping a stick about a foot in length in both hands and carrying it with him over the hurdles.

For neophytes

A boy reporting for the first time should be nursed along at the beginning. Crashing into a flight of hurdles is no picnic, even for the more experienced men. To the neophyte the crossings may be fraught with danger, especially to the knees and ankles.

To protect the boys from exposure to injury, the coach should work them over a "soft" or heavily-padded hurdle. Thus when ankles and knees make contact, they will not be badly bruised.

Makeshift hurdles offer another means of protecting the neophytes' legs. A plank of light wood may be placed across two hurdles which, if hit, will fall to the ground with no damage to the hurdler.

The coach should also see to it that the beginner works out on the grass. A fall into the cinders is no way of building up confidence in the newcomers. For further protection the beginner's ankle and knee may be padded with sponge rubber, so that he can run a "hard" hurdle without ruining himself.

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CONDITIONING AND WARM-UP EXERCISES

By L. E. Morehouse and A. Baumgartner

Both Laurence E. Morehouse and Albert Baumgartner hail from the University of Iowa, where the former is an instructor in the department of physiology and the latter a professor in physical education and varsity gymnastics coach.

SINCE participation alone in an event rarely conditions the muscle structure to a peak—no matter how hard the athlete works—most track coaches nowadays supplement their regular practice schedules with a program of general exercises.

These conditioning catalysts vary with the event. They are easy to perform, require no special apparatus and utilize the large muscles, as it is through the activity of these muscles that general physical condition is most improved.

A program of this type increases: (1) the size of the general musculature, (2) strength, (3) endurance, and (4) efficiency of performance.

When used as warm-ups before practice and actual competition, the exercises have these immediate effects: (1) increases body temperature to that most favorable for muscular activity, (2) improves muscle tonus, (3) shortens the length of the relaxation period, (4) removes the effects of possible early contracture, and (5) decreases the chances of injury.

A number of conditioning and warm-up exercises follow. Five exercises for general conditioning and

five others for warming up are given for each event. Each exercise should be performed at a fairly rapid rate as many times as possible, unless otherwise indicated.

EXERCISES FOR RUNNERS

Conditioning

LOOSE TRUNK-MILL. Stand with legs apart, trunk bent forward horizontal to ground and arms dangling loosely: Brisk turning right and left with swinging movement of arms on a vertical plane. (Emphasize upper arm movement.)

ALTERNATE KNEE-SITTING AND KNEE-STANDING. Sitting on knees, trunk bent forward, arms backward: Quick forward and upward swinging of arms with a simultaneous rising to knee standing: (Do this movement rhythmically.)

SMALL HUMPED BACK. Sitting on knees (or knee standing), hands resting on floor near knees: Extend and flex knees, palms remaining firmly on floor.

LEG STRAIGHTENING. Lift one knee to chest, both hands grasping toes: Extend knee. Same with other leg.

SEAT-STRADDLING. Sitting on floor with legs extended and closed, hands grasping the ankles: Open legs and bend trunk forward, forehead almost touching floor. Close legs and stretch trunk.

Warming up

ARM-ROLLING. Hold arms sideward and horizontal: Briskly rotate extend-

ed arms inward and outward in shoulder joint.

ALTERNATE LEG-PULLING. Sitting on floor with legs extended, both hands grasping right leg: Pull right leg towards chest, keeping both legs and trunk stretched as much as possible. Same with left leg.

HIGH KNEE-BRIDGE. Knee-standing, trunk erect, legs apart: Lower trunk backward until head touches floor, keeping hip forward.

QUICK DEEP KNEE-BEND. Flex and extend knees with a simultaneous sideward upward swinging of the arms, keeping trunk erect.

ALTERNATE KNEE-FLEXION. Standing with legs wide apart, hands placed on hip or thighs: Alternately, left and right, flex and extend knee, keeping stationary leg straight.

EXERCISES FOR HURLERS

Conditioning

FOOT FLEXION. Sitting on a low stool with legs extended and feet about twelve inches apart, the heels resting on floor and feet slanting upward: Flex feet by bringing toes near floor, then adduct feet, without moving heels away, until toes of each foot come close together. Raise toes up to starting position and repeat.

HEEL RAISING AND FOOT ROLLING. Standing behind a chair, hands placed on its back, feet parallel and about ten inches apart, body inclining slightly forward: Rise on toes, rotating feet outward and coming down on outer border of feet to starting position.

GOOSE-STEP. Raise left knee to hip height and extend knee forward, then

place left foot on floor. Repeat same with right leg. Increase speed gradually. Swing arms freely during movement, keeping body erect.

LEG CIRCLING. Standing behind a chair, hands placed on hips: Raise and circle left leg several times over back of chair and repeat same with right leg, keeping both legs straight.

ANGLE SUPINE LYING. Lying on back with legs at right angles to body and against a wall, arms extended overhead: Fling arms forward and touch toes.

Warming up

INSIDE LEG-MUSCLE PULLING. Standing sideways to a high hurdle, left foot placed on apparatus, left hand on left thigh, right hand on hip: Bend trunk to left and slide hand along leg towards foot. Repeat same to right.

KNEE-LEG EXTENSION. Kneeling on right knee, left leg extended sideways, left hand on left thigh, right hand out to side: Bend trunk to left and slide hand along leg toward foot. Repeat same to right.

FRONT-LEANING, FALL-OUT POSITION. Body faces downward, supported by hands and feet, thighs extended: Alternately, left and right, bring knee up to chest with foot between hands, keeping stationary leg straight.

HALF SQUAT, HALF STRADDLE. In squat rest position, hands resting on floor outside of thighs: Alternately, left and right, extend leg sideward.

STANDING, KNEE RAISING. Raise left knee and grasp foot or knee with both hands, pulling knee farther up. Keep stationary leg straight and body erect.

HIGH AND BROAD JUMPERS

Conditioning

ALTERNATE CURVE-SPREADING. In front leaning rest (body facing downward, supported by hands and feet, thighs extended): Bring right leg near right hand without touching floor, and return. Same with left leg to left hand.

DEEP STANDING-BALANCE BACKWARD (with helper). Performer raises left or right leg forward, helper grasps knee of raised leg with one hand and ankle with other: Performer slowly lowers trunk backward until hands touch floor.

ALTERNATE CURVE-SPREADING (in squat rest). From squat rest (hands inside knees and resting on floor): Extend right knee forward, then swing right leg backward and return to starting position. Same with left leg.

KNEE-JUMP. From knee-standing, instep on floor, arms backward: Swing arms forward and jump to squat stand.

SQUAT-JUMP (from standing position). (1) Rise on toes and raise arms upward; (2) slightly flex knees and swing arms forward, downward and backward; (3) jump upward or forward. Repeat.

(Continued on next page)



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Warming up

ALTERNATE LEG-PULLING (in supine position). Lying on back, flex right knee, foot flat on floor: Raise left leg and grasp heel with both hands, pulling leg toward chest; then extend right knee. Same with other leg.

SLOW DEEP KNEE-BEND. Standing on toes: Slowly flex and extend (1) opened knees, (2) closed knees.

SIDE-STRADDLE POSITION. Standing with legs apart, arms extended upward, left knee flexed, trunk bent to right: Spring trunk forward and touch floor to right of right foot with hands. Same to left.

FLOOR-SQUAT. In front leaning rest: Squat through to (1) squat sitting position, (2) back leaning rest.

BRIDGE. Sitting on floor with knees flexed, feet flat on floor and near buttocks, hands resting on floor somewhat behind hips: Raise and lower hip.

POLE VAULTERS

Conditioning

SITTING, KNEE FLEXION AND EXTENSION. Sitting on floor, legs extended, hands resting on floor near hips: Raise heels slightly off floor and flex knees, then extend them to starting position and repeat.

HAND-STAND PUSHING. Standing on hands, feet resting against a wall: Alternately flex and extend arms.

SIDE LEANING-REST. Sideward leaning rest on floor, feet and right hand only touching floor, left hand on hip: Alternately flex and extend right arm. Same with left arm from left side.

SUPINE LYING, WEIGHT LIFTING. Lying on back with legs extended, arms behind neck, a weight of about 10-15 pounds (a sandbag) placed across ankles: Slowly raise and lower legs.

HANGING, ARM FLEXION AND EXTENSION. Hanging on horizontal bar with ordinary grasp: Flex both arms (chin-ning), bring right elbow above bar and then return to hanging position. Same with left elbow.

Warming up

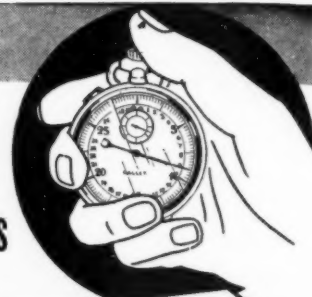
SMALL SEE-SAW. Sitting on floor with feet drawn close to buttocks, hands clasped above ankles: Roll over backward and return. Repeat.

HIGH BRIDGE. Lying on back, legs slightly apart with knees flexed, feet flat on floor, hands on floor beside the ears, fingers pointing towards shoulders: Extend arms and push hip upward into a bridge. Repeat.

SUPINE LYING, LEG CROSSING. Lying on back, legs extended, hands behind neck: Raise legs about twelve inches off floor, alternately cross legs left and right while holding them off floor.

ANGLE FRONT-LEANING REST. Body, flexed at hip to 45 degree angle, faces downward supported by hands and feet, legs straight: Move body forward to bent-arm front-leaning rest and return.

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LEG FLINGING. Fling left leg and arm forward, sideward and backward, keeping stationary leg straight. Repeat same with right leg and arm.

SHOT-PUT, JAVELIN, DISCUS

Conditioning

FINGER-WRIST EXTENSION (1). Press both hands, with palms against each other (fingers extended and pointing forward) in front of chest: Turn fingers towards chest and then forward and downward. Do this briskly.

FINGER-WRIST EXTENSION (2). Press both hands with backs against each other in front of chest, fingers pointed downward: Turn hands forward and backward (backs of hands remain firmly together).

FINGER-WRIST EXTENSION (3). Press both hands with palms against each other (fingers pointing upward) upon back: Push hands upward and downward between shoulder blades.

TENSE TRUNK - TURNING. Standing with legs wide apart, arms at side horizontal and firmly set in shoulder joints, hands fisted: Brisk trunk turning left and right.

LARGE SEE-SAW. Lying on back, legs extended, arms extended backward, raise legs behind head until toes touch floor: Swing straddled legs forward and bend trunk forward while arms push ahead of feet. Return to starting position and repeat.

Warming up

HAMMER-SWINGING. Standing with legs apart, left foot lightly touching floor, right knee is slightly flexed and trunk bent and turned slightly to right, arms in deep right oblique position: Brisk loose trunk circling.

LARGE HORIZONTAL HIP CIRCLING. Standing with feet about twenty-four inches apart, knees slightly flexed, arms sideward: Large circling of the hip with a simultaneous knee springing. (Shoulders and arms remain as stationary as possible.)

TRUNK SWINGING SIDWAYS. Standing with legs apart, left knee flexed, the trunk is loosely bent to left side, right arm hanging loosely over the head: Briskly change knee-flexion and arm position while loosely swinging trunk to right. Continue this in rhythmic fashion.

FRONT LEANING REST. Body faces downward supported by hands and feet, thighs extended, feet raised and resting on a hurdle: Spring body upward with pressure from fingers and land on fingers.

FLANK - SWINGING. Standing with legs apart, right arm extended upward, left arm extended downward and somewhat behind back: Brisk trunk bending right sideward with a sideward downward swinging of right arm as far behind back as possible, the left arm swinging sideward upward as far over head as possible. Keep legs straight (1) with extended arms, (2) with flexed arms.

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GROUP TENNIS INSTRUCTION

By Ken Smith

Ken Smith is an instructor at the Pasadena Junior College.

PERHAPS the chief objective of our scholastic athletic programs is to offer actual participation to as many individuals as possible. In the soundly-organized department the average student seldom spends his time observing the varsity at practice or in roaming the streets. He is a member of a group, developing worthwhile habits of leisure time and forming a permanent interest in sports.

Assuming, then, that there is a need in most schools for carefully-planned sports classes which cater to the students who do not play on varsity teams, let us see in what way tennis may be organized to meet this need.

Where classes are large and time pressing, the high school physical education instructor who would impart a knowledge and a working familiarity with the rudiments, must plan his period so that the most is made of every minute.

The most elementary type of instruction—instruction off the court—lends itself admirably to class teaching, but is limited to the most rudimentary of tennis activity. Without the sequel of court practice it is of almost negligible value, except that it does serve to familiarize novices with tennis terminology and does give them some of the feel of the swing of the racket.

The students may be lined up in regular class formation, ten feet apart facing the instructor. Each student has a racket. The instructor demonstrates the stroke to be attempted and, on the count of one, all students draw their rackets back for the backswing, and, continuously, on the count of two bring their rackets forward and through.

The forehand and backhand drives are best suited to this type of practice. The instructor passes among the students, making corrections in the grip, the stance, the weight shifting, the back swing, the front swing and the follow through. This period should be confined to fifteen or twenty minutes. If the students learn and appreciate the value of full-fashioned stroking with the proper shifting of the weight, the time may be considered well spent.

Following these preliminaries the students may take the court. The arranging of the players is difficult

with large classes. Each available court should be considered a unit, and the number of players in the total group should determine that unit.

Two players on a court would be ideal for intensive instructional purposes but as many as twelve can be accommodated if absolutely necessary.

Three units of four players each can be used in learning the forehand and backhand. In this formation each group of four players is assigned one-third of the court for practice. Player number one practices his swing close to the fence, player two stands on the base line in front of him, where his assignment is to hit a good forehand. Player number three stands across the net and tosses a ball underhand to player two. Players four collects the balls close to the opposite fence. The students alternate their assignments, each one taking a turn at stroking the ball both from the forehand and backhand sides.

The other strokes may be practiced in smaller groups. A court formation can be arranged to meet the needs of the group.

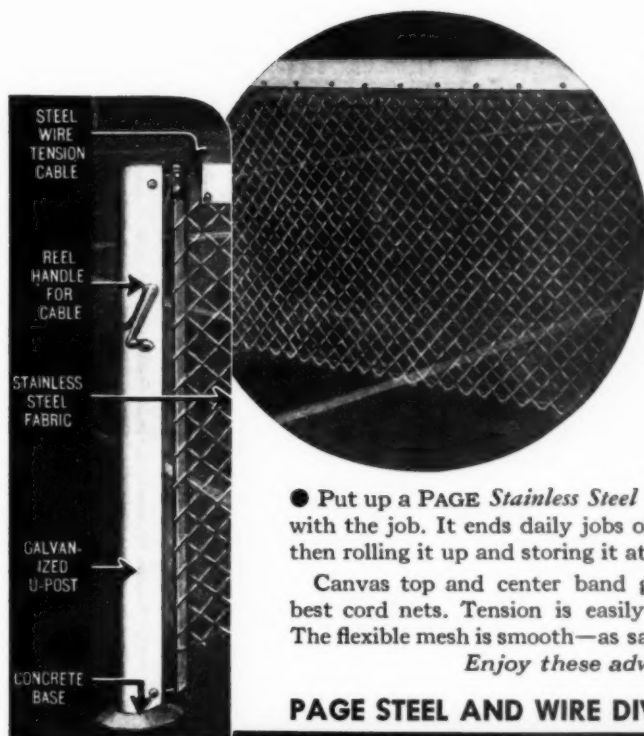
Practice under supervision should never be a dull affair. Neither should it be one long scrimmage with the players pitted against each other. It must involve intensive and concentrated work on the different strokes.

Teaching sequence

Regardless of the number in the class and the facilities for practice and play, the teaching sequence should be as follows:

1. General information: clothing, equipment, basic principles.
2. Practice catching ball, keep eyes on it.
3. Batting ball, two hands, with body pivot.
4. Horizontal batting of ball with racket, two hands and then one.
5. Forehand grip, backhand grip.
6. Ready position, footwork.
7. Timing, when to hit ball.
8. Strokes: elementary service.
9. Strokes: forehand-top spin, under spin, flat.
10. Strokes: backhand-top spin, under spin, flat.
11. Strokes: advanced service.

(Concluded on page 41)



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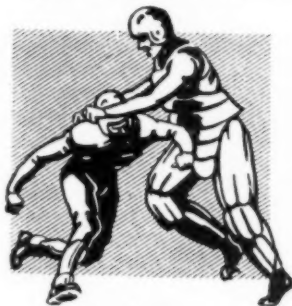
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This creates a problem for the high school and college coach and athletic director. With many thousands of Army and Navy athletes to be equipped, there may be a shortage of athletic

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Remember, it is going to be a herculean task to fill all Army and Navy orders and to equip all school and college teams in time for their opening games. Don't run the risk of being caught unprepared. Your cooperation *now* with the manufacturers will guarantee your receiving the equipment you want, at the time you want it.

"IT PAYS TO PLAY BALL" WITH THE MANUFACTURERS

Advanced Tumbling

(Continued from page 11)

himself in time if he overthrows.

The full twist is considered the desideratum supreme of all school-boy tumblers. Though difficult, it has been completely mastered by many ambitious boys.

Before attempting a full twist, the tumbler should have complete command over the half twist. The full, while somewhat like the half, is started almost immediately after the feet leave the mat and follows smoothly through a full turn.

After throwing the arms upward and around in the twist, the athlete brings them in close to the body so that the twist will not be checked. Many times a quick twist of the hips directly after the head and shoulders have been turned will facilitate a full turn.

There should be no hesitation or break at any point in the twist. Here, as before, a safety belt can be used to advantage.

Arabian tumbling

For the baroni (a roundoff without touching the hands to the mat) the tumbler must take a fast run with the arms over the head as for a roundoff. The right leg is kicked up and around as he jumps off the left leg, and the right arm thrown up and behind in the same fashion. The left arm is thrown across the body. All this occurs simultaneously.

At the finish of the turn the legs snap under the body and land in the same manner as in the roundoff. The head is held back all this while. Leg kick and jump are the most important factors in gaining height.

An Arabian cartwheel (without touching hands to the mat) is done the same way, except that the landing is made facing sideways as at the finish of an ordinary cartwheel.

Arabian somersaults (tinsicas without touching hands) are frequently employed in figure skating and dance routines. The initial leg kick and jump are the same as in the baroni. After the arms are thrown straight down and back, the body is whipped into an arch and the landing made lightly as in a tinsica.

Following are a number of suggestions to keep in mind when devising and practicing routines.

1. Each routine should show the tumbler's originality.
2. The routine should flow smoothly and lightly down the length of the mat.

3. The somersaults should be of uniform height and even rhythm.

4. The most difficult feats should be placed at the end of the routine to show progression.

5. The best routines contain both forward and backward tumbling.

6. Advanced tumblers should not use forward or backward rolls or other elementary tricks in their routines.

7. Different tricks done in poor form will detract from the beauty of the routine.

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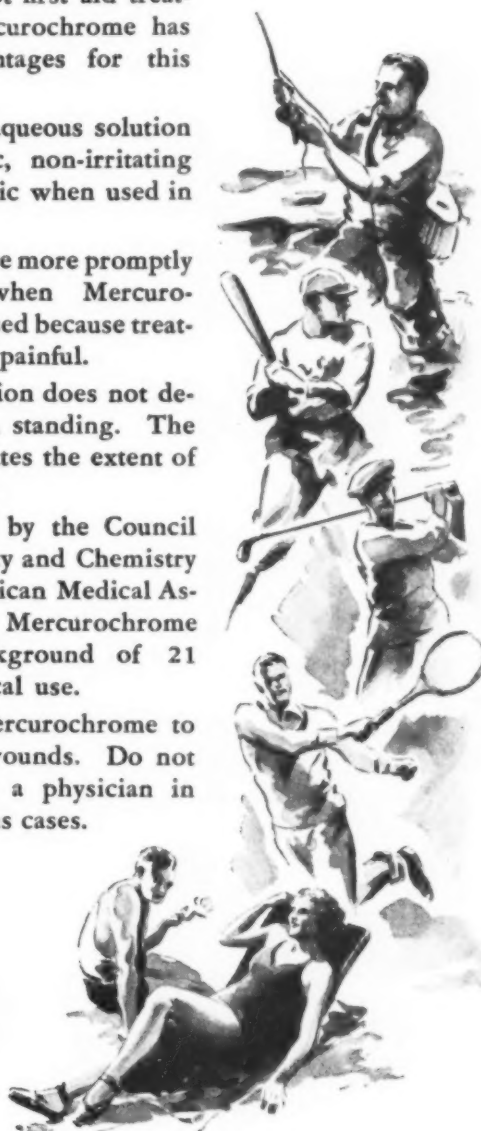
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Diet for the Track Athlete

(Continued from page 16)

The requirement should be met largely with ample amounts of high grade proteins.

Some of the foods which especially satisfy these requirements include:

Foods with high energy value: Malt sugar, honey, shredded wheat cereal, raisins, dates.

Foods with a high alkaline effect: Soy bean bread, orange juice, apples, bananas, potatoes, tomatoes, cantaloupe, raisins, dates.

Foods with elimination-assisting bulk: raisins, dates, lettuce, celery, string beans (fresh), cabbage (raw), carrots (raw).

Sources of salt: table salt, salt tablets, milk.

Sources of vitamins: milk, fresh vegetables, vitamin capsules (used during winter and early spring).

Foods with high grade protein: shredded wheat cereal, milk, eggs, peas, beans, gelatin, lean meat.

In prescribing a diet certain considerations must be given to individual differences. Some athletes, for example, are overweight while others are underweight. Boys with a low hemoglobin content need a "blood building" diet. Some need less bulk than others to assure satisfactory elimination.

Nearly everyone has at least one idiosyncrasy pertaining to his diet. As the saying goes, "one man's food may be another man's poison." The diet must have sufficient variety to satisfy the appetites of everyone.

An ideal competition-day diet for the trackman may be planned as follows:

8:00 A.M. Breakfast (approximately 1,000 calories): one-quarter cantaloupe; boiled or poached egg on soy bean bread toast; shredded wheat cereal served with a slice of banana, malt, sugar and milk; glass of milk.

9:30 A.M. One glass of orange juice and honey. (Mix one quart of orange juice with one-half pound of honey or malt sugar.)

10:30 A.M. One glass of orange juice and honey.

11:30 A.M. Luncheon (approximately 800 calories): tomato soup, soy bean bread toast, raw carrots, glass of milk, apple.

12:30 P.M. One glass of orange juice and honey.

1:30 P.M. One glass of orange juice and honey.

3:00 P.M. First event.

3:15 P.M. One glass of orange juice and honey. Swallow one salt

tablet with small amounts of cool water.

5:00 P.M. Last event.

5:15 P.M. Swallow one salt tablet with small amounts of cool water. Rest.

7:00 P.M. Dinner (approximately 1,200 calories): one-half grapefruit with malt sugar, baked potatoes with butter, baked beans, peas with butter, sliced tomato and lettuce salad, vitamin capsule, glass of milk, gelatin.

Training tips

Following are a number of training tips for the trackman. These include suggestions on diet and the broader aspects of conditioning.

1. An excess amount of fat in the diet will hasten the onset of fatigue during muscular activity.

2. Athletes perform best when their stomachs are empty.

3. Drink plenty of liquids up to an hour and a half before a contest.

4. Gentle exercise before or after meals aids digestion.

5. Exhaustive exercises with excitement decrease digestive action.

6. A heavy meal before going to bed causes marked restlessness.

7. Fasting reduces working power.

8. Loss of salts from the body, due to excessive sweating, causes a decrease in body fluid and reduces efficiency. Ingestion of salt repairs such a loss.

9. Weight gain or loss during the season should be in accordance with the amount of body fat and the body build. The boy with excessive fat will improve his performance as he reduces his weight. For thin boys it is unhealthy to lose weight during the season. Interpret weight charts accordingly.

10. Sugar and gelatin ingestion seems to improve the endurance of distance runners.

11. Want of sleep reduces working power.

12. Frequent rest periods during practice prolong the onset of fatigue, and increase working capacity.

13. The regularity of retiring and arising is as important to physical efficiency as is the number of hours of sleep.

14. Most schoolboy track athletes require from eight to nine hours of sleep.

15. The sleeping room should be well ventilated, but not drafty.

16. Do not take laxatives unless prescribed by the physician.

17. Pulled muscles are caused by an inadequate warmup and sudden changes in temperature.

18. Overwork following illness damages the heart muscle.

19. Rest a sore muscle, do not try to work out the soreness.

20. Shin splints is a sign to decrease work and run on grass or other soft ground.

21. Bandage a sprain immediately. Use cold applications and light massage to reduce further swelling. X-ray if extremely painful.

22. Prevent stone bruises by placing a soft sponge in the heel of the shoe.

23. Wash all cinders and other dirt particles out of wounds and apply antiseptics immediately.

24. Tight fitting shoes cause blisters.

25. Wear clean, unbleached cotton socks to prevent infection from blisters.

26. Dirty suits and supporters may cause boils.

27. Uniforms should fit loosely as a constriction may reduce the blood supply to working muscles and thus hasten fatigue.

28. After each event, don warm clothing, continue to perform light exercise and then get a massage.

29. The massage should be a light one, with shaking, kneading and stroking actions all toward the heart. Get a massage before and after each meet and after each practice.

30. Elevate the legs during massage and during rest after exertion.

31. A hot shower is detrimental to performance. Take a warm shower followed by a cool one. Spend less than three minutes under a warm shower.

32. Reduce the amount of work before a meet.

33. Preliminary exercise increases performance.

34. Physical capacity is increased on cool days and decreased on hot days.

35. Overstretching of muscles increases fatigue.

36. Cheering and encouragement improves performance.

37. Worry and other mental troubles hasten muscular fatigue.

38. Frequent practice at a moderate intensity is better than infrequent practice at a strenuous intensity.

39. Staleness often is a result of overtraining.

40. The process of de-training at the end of the season should be as gradual as that of training.

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Department of Health and Physical Education

[illegible]

Here Below

(Continued from page 7)

WHILE Dr. Bilik presents an interesting argument, we remain adamant. We refuse to believe the modern game can do "enormous harm."

As Dr. Bilik himself once told us, and re-intimates here, "I have not seen a single case of a normally healthy youngster being permanently injured by athletic competition, however severe and injudicious the latter. Over exertion may lead to transient exhaustion or spectacular collapse, but it never has caused organic damage of the heart or of any other vital organ." (Scholastic Coach, May 1934.)

We don't think the athlete has much to fear from "potential," or latent, dangers, either. Dr. Bilik happened to see a game in which a player collapsed. We have seen at least 150 games the past few years and have yet to see a player collapse. For every team that tottered off the floor, we've seen one that trotted off happily.

Only two weeks ago we saw a victorious Ohio University team, after forty minutes of continual driving against Duquesne University, run off the court into the locker room, whooping it up all the way.

We doubt whether the athlete is exposed to any "disease." If this were true, practically every player would be laying up baskets in the hospital by the end of the season. You must remember that in addition to their games, the boys have at least three tough practices a week. That would mean about five exposures a week over a period of 16 weeks.

Judging from the excellent health chart of the average team, the big bad bugs must be passing up a good thing.

MARKING SYSTEM

Hartford, Conn., High School grades its physical education classes with the novel marking system shown on the opposite page. The boys are classified according to Cozens and Neilson's formula: $20A + 4.75H + 1.6W$, in which "A" stands for age in years, "H" height in inches and "W" weight in pounds.

There are three aspects to the program: physical, social and mental. The physical side, consisting of the actual athletic activities, counts for 60 per cent of the final mark; the other 40 per cent is divided evenly between the social and mental aspects.

The social mark is purely subjective in nature. A plus (+) is given for each piece of good work observed under the various headings, and a minus for poor work. Five per cent is added to the final mark for participation in intramurals and 10 per cent for playing on a varsity team.

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Cleats No. 4 (14) F	\$.25	Neatsfoot Oil (Qt.)	\$.90
Cleats No. 5 (14) M	\$.25	Repair Kit	\$10.00
Cleats No. 5 (14) F	\$.25		
Laces, gross	\$4.50		
Fixtures Complete	\$.05		
Pliers	\$.25		
Cleat Wrench	\$1.50		
Cork Soles (pr.)	\$.09		
Sole Plates (pr.)	\$.24		

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Style 57	\$6.50		

Basketball Shoe Accessories

Laces, gross	\$4.50	Sponge Insoles (pr.)	\$.25
Outsoles (pr.)	\$.90	Cork Insoles (pr.)	\$.09
Resoling (pr.)	\$1.75		

TRACK SHOES

Style S	\$6.75	Style J	\$7.50
Style N	\$5.50	Style K	\$5.50
Style NX	\$4.50	Style KX	\$5.50
Style T	\$3.90	Spikes	\$.05

Track Shoe Accessories

Wrenches	\$.35		
Laces, gross	\$1.50		
Fixture Complete	\$.07		

BASEBALL SHOES

Style SB	\$8.50	Style KB	\$4.50
Style NB	\$5.50	Style KBS	\$4.50
Style NBS	\$5.50	Style 33	\$3.75

Baseball Shoe Accessories

Laces, gross	\$1.65		
Spikes (sole or heel), pair	\$.18		
Pitchers' Toe Plates, attached to shoe, leather, each	\$1.50		
Pitchers' Toe Plates, attached to shoe, full cap aluminum, each	\$1.00		
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Pitching

(Continued from page 13)

Only then do they throw. When this type of procedure becomes habitual, good control invariably follows.

Frequently, during pitching practice, we place a catcher on a chair behind the plate. The pitchers are instructed to throw to a spot, trying as best they can to keep the receiver rooted to his chair. While fun for the players, the drill helps develop good control.

The Seton Hall pitching corps three seasons ago learned the value of good control from one of their members. This fellow was equipped with only a moderate fast ball and a fair curve, but through patient practice he had developed into a real marksman. He could keep the ball high or low, inside or out, as he desired.

This rare ability enabled him to hold the hard-hitting Duke University team to seven scattered hits; no mean accomplishment in view of the fact that this same Duke club had been knocking off the class of the college nines by football scores.

Another thought I would like to pass along is that of abandoning the old reluctance against shifting a player from what is called his "natural position." I would never hesitate to transfer a player to another position if I thought his natural qualifications could be used to greater advantage elsewhere.

Even today there are in the major leagues many square pegs in round holes—players who, though mediocre at their chosen positions, might blossom into real stars if they were shifted to other spots.

I recall a young Cuban third baseman of the Washington Senators, named Estallala, who was shifted without any particular success from the infield to the outfield. Estallala had the best arm I have ever seen. If given a chance on the mound he might have found his proper groove and become a successful pitcher. His natural attributes were certainly most suited for this role.

Perhaps the outstanding proof for my argument that pitchers can be made is the story of that ace of National League pitchers, Bucky Walters.

Bucky started out as an infielder and he was a fairly good one, too. He had such an exceptionally fine arm, however, that shrewd Jimmy Wilson made a pitcher out of him. Constant practice, good physical tools to begin with and competent instruction are the factors which combined to elevate Bucky Walters



CURVE BALL: A good outcurve comes up to the plate with tremendous spin and breaks to the opposite side from which it is thrown. As a rule, the ball is gripped naturally and released with an outward rotation of the arm and hand. When the arm reaches the plane of the body, the wrist snaps outward and the ball is released from between the thumb and the forefinger. The firmness of the grip and the snap will vary with different pitchers.

from a third baseman on a cellar club to ace of the champions' staff.

In our discussion of the various requisites of a good moundsman we have skipped over one of the most essential of all—a stout heart or, in the nomenclature of the diamond, "guts." A boy with a faint heart never made a good chucker. With men on base and the score close, or with the fate of the game riding on one pitch, the thrower with intestinal fortitude is the boy who will come through for you.

I have chosen to conclude this piece with a list of some of the more important mistakes of which young pitchers are guilty. I myself have taken many a lesson from these:

1. Don't take your eyes off the ball while fielding it.
2. Don't let up to get the ball over the plate when behind the hitter.
3. Don't handle fly balls in the infield.
4. Don't fail to start for first on ground balls hit to your left. In the event the ball is fielded by the first baseman, cover the bag.
5. Don't pitch to a batsman when an infielder is away from his position.
6. Don't forget that control is the most important part of pitching.

Tennis Instruction

(Continued from page 32)

12. Smash: overhand, drive, over-head.
13. Volley, ball on fly in the air.
14. Lob, hit ball in air with a high arch.
15. Rules: singles and doubles.
16. Actual play: court tactics, position, zoning, etc.
17. Etiquette, sportsmanship, safety training.
18. Advanced play: strategy and psychology.
19. Inter-school teams, competition, leagues.
20. Tournaments, club organizations.

Until the elementary principles of stroke production have been completely absorbed it is useless to teach the fundamentals of court position and strategy. On the other hand, few students will maintain interest in the lessons unless some time is spent in competitive activity.

In the beginning some time should be devoted to the elements of the game and to letting the student find out for himself his limitations in fundamental skills. However, this should act as motivation towards perfection of strokes, body movements and court strategy.



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Strategy of Infield Defense

(Continued from page 9)

or first baseman fielding the bunt. If the play to third is impossible the ball is thrown to first, where the second baseman is covering.

When the defensive team has a lead in this situation it may play for two, depending on the type of hitter. With two strikes on the batter and nobody out, or with merely one out prevailing, it is good baseball to play for the double. With two outs, of course, the infield should play the hitter.

Bases full, nobody out, score close. The infield plays for two. If the ball is hit directly at an infielder the play always goes home to first. If hit to the side, the right play to make depends on the inning. In the early part of the game, a third baseman fielding the ball to his right should step on third and throw to first. If he fields the ball to his left, the play should be second to first.

The same rule holds true for second or short. On balls hit to either side of them the play goes to second and then first.

In the early innings second and short deploy on about the base line, so that they can play either home or second. In the late innings, with the score close, the infield draws in for a play at home.

If the ball is hit to the right of the first baseman, he throws to second and rushes back to the bag for the return throw. On balls to his left he plays home if possible.

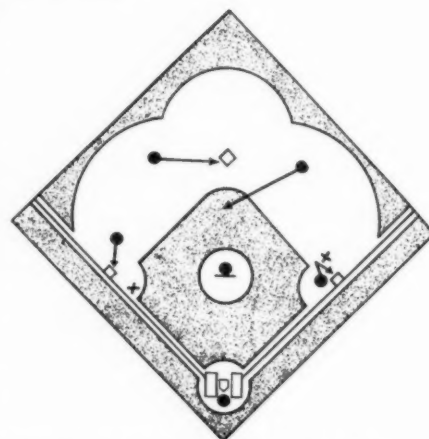
In the last inning, where one run may mean the game, it is advisable always to play home.

With one out the infield plays for the double, second to first. However, on hard hit balls directly at third, first or the pitcher, the play may go home. But normally the play is second to first.

Man on second, none out, score close. The infield deploys for a possible bunt; first baseman on line, second baseman over toward first to cover that bag if necessary, shortstop in a bit closer than normal, and third baseman in such position that he can cover both the bunt and the base. This is a play of great judgment on his part.

Short and second keep an eye on the runner to hold him as close to the base as possible.

If the ball is hit to the shortstop and he fumbles, he should look for a play at third as the runner makes his turn at that base. The shortstop often will have a play at third. When the score is close he should make it.



FIRST AND THIRD, nobody out, score close, double steal. Unless the players have unusually powerful arms, high school infields should use the cutoff play, with one man covering second and the other cutting off the throw.

With runs to the good or with one or two outs, it pays to play back for the batter. On all plays the infielders should help each other out by calling the correct play.

Man on third, nobody out. The score determines whether the infield should be brought in or not. When ahead by two or more runs the infield stays back. When behind or tied it comes in, except with two out, in which case it plays back.

Man on second and third, score close. The infield plays in, unless three or more runs ahead. When behind, with less than two out, it plays in.

Man on first and third, nobody out, score close. The first baseman holds the runner on, third plays normal, second and short play for two. With one out they always play for two. With two outs they go after the batter.

On attempted steals by the runner on first, the second baseman and shortstop should have a signal as to which will cover the base. The other man goes into a cutoff position about thirty feet in front of second base. If the runner on third breaks for home, the cutoff man takes the catcher's peg and wings it home. If the runner stays put, the throw goes to second.

If the second baseman, shortstop and catcher all have good arms, second or short may cover second by a prearranged signal and the other man may back up the play. Then, if the runner on third breaks for home, the man covering the base runs forward to take the throw and plays the runner going home. The backup man helps the coverer by calling the play.

Physiology of Athletics

(Continued from page 4)

"natural" or "all-around" athlete possesses the same quality. He is able to establish a steady state of activity in which the recovery mechanisms are able to maintain a muscular environment which is free from toxins and rich in food.

The athlete trained for a certain performance executes his movements in a most economical manner. He has reached a high degree of neuro-muscular coordination. His working muscles are contracting powerfully and the muscles which oppose them are nearly completely relaxed.

The nervous system is constructed in such a manner that when a muscle is stimulated to contract, the tonic stimuli to the antagonistic muscle are diminished and it relaxes. This phenomenon is known as "reciprocal innervation of antagonistic muscles."

During a sports performance, the movements are usually so executed that muscles work alternately. The muscles which contract during a flexion thus become the antagonists during extension. Likewise, the extensors are the working muscles during extension and become the antagonistic muscles during flexion.

Cause of fatigue

If the athlete remains tense during performance and does not allow his antagonistic muscles to relax, while his working muscles are contracting, he deprives his muscles of the rest periods they need for recovery and thus hastens the onset of fatigue.

The basketball player "fights" the water in an attempt to swim and the swimmer "runs himself ragged" on the basketball court. Although they are both in excellent physical condition, exhaustion comes quickly.

With a moderate amount of training, however, the basketball player will become adjusted to the water and will learn to swim for some distance with a minimum of accumulated fatigue. Likewise, the swimmer, through training, will apply his energy more economically during a basketball scrimmage and thus prolong the onset of fatigue.

Training thus furnishes two refinements to performance. First, the movements become so timed that rest periods are allowed and, second, normal reciprocal innervation of antagonistic muscles is facilitated.

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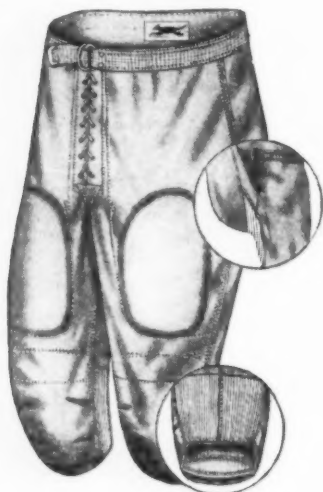
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SPORTS FACILITIES SUMMARY

This inventory of the accomplishments of the Works Project Administration covers the first five years of the Project—1935-40. It should be remembered that many of the fine stadiums and gymnasiums mentioned in the study were never fully equipped; and since the budget of the WPA has been drastically cut the past two years, the responsibility for adding these finishing touches will fall upon the shoulders of the local authorities. Most of the money now being appropriated to the WPA and PWA is being used for purposes of national defense.

SOMEWHERE, on the thousands of recreational facilities constructed in recent years under the Federal Works Program, there may be developing another Tilden, another Jones or perhaps another Babe Ruth. For America today has more opportunities to play than ever before.

An inventory of the accomplishments of the Work Projects Administration from its inception in July, 1935 up to January 1, 1940, shows that the construction of sports facilities has occupied a prominent place in the program. During these four and one-half years, armies of WPA workers have built or improved 10,000 playgrounds, 4,500 athletic fields and almost 500 golf courses. In the same period they have built or improved 900 swimming pools and more than 10,000 tennis courts. Useful work has been accomplished in more than 6,700 parks, many of which were formerly "waste" land. And for those who are merely spectators, 2,000 stadiums, grandstands and bleachers have been improved and built.

The WPA recreational program helped amateur baseball enjoy its most successful season in 1939, with 27 leagues comprising 135 amateur teams. In Arizona, Montana and many other states, softball leagues for both sexes have been organized by WPA workers. Leaders trained in life saving by the Red Cross have supplied supervision at hundreds of pools and beaches built by the WPA. In Denver, a sports federation organized by the WPA Recreational Division, in cooperation with a number of civic organizations, has conducted six-man football, soccer, baseball, basketball and other games for out-of-school youths, 17 years of age or older.

One of the results of the WPA construction of sports facilities has been the remarkable increase in the number of golfers and tennis players. In the construction of tennis courts—nearly 8,000 new courts and 2,500 improved—clay, asphalt and other surfaces have been utilized.

In the same fashion golf courses have been adapted to local needs and available materials, sites and finances. In many cases golf courses, tennis courts, swimming pools and similar facilities have been included in general park developments. City Park at New Orleans is an example. This park has been almost quadrupled in size, being increased from 400 to 1,500 acres. In February, 1939, the third annual Crescent City \$10,000 open tournament was played on City Park's new golf course—a court built by the WPA on what only a few years ago was an impenetrable swamp. In connection with this course, the WPA built an all-weather range, with a 300-foot teeing strip for fair weather and six protected driving stalls for use on rainy days.

Golf and swimming

Work on golf courses has been ideally suited to the WPA program because, except for expert supervision, little skilled labor is generally required and the cost for materials is low. Construction of the courses has been accompanied in many cases by residential developments in the surrounding areas, as for example, the Washoe County golf course at Reno.

In the construction of swimming pools and beaches, much has been done to eliminate the hazards of the "old swimming holes," which were the only bathing facilities available in hundreds of communities. Many swamps have been cleared to make way for sanitary pool facilities.

Slums were torn down in a number of urban areas to make way for recreation centers, which included playgrounds, baseball diamonds and tennis courts as well as swimming pools and wading pools.

Handball has increased in popularity as the result of the construction of 1,365 new courts, and in all parts of the country horseshoe pitchers are striving for ringers on 1,751 new courts.

Of the 2,270 new playgrounds, nearly 1,400 were built as part of school facilities; and of the 8,000 improved, some 6,700 were at schools. All of them are available to school children.

The impetus to spectator sports also has been tremendous with 2,500 new athletic fields covering 15,000 acres, and 2,000 improved fields aggregating 12,500 acres. More than 1,600 new stadiums, grand-

stands and bleachers were built and nearly 600 improved. In the stadium construction new designs have been employed to provide better seating for the fans. Some of these were built for municipalities, some for state colleges and universities, and others for public schools.

As an example, at Lynn, Mass., a municipal stadium of quatre-foil design was so constructed that 70 percent of the spectators sit between the 30-yard lines at football games. There are only a few rows of seats near the end zones while at the 50-yard marker there are 40 rows of seats. Twelve rows of seats behind the end zones give the stadium its quatre-foil shape, but these are intended only for persons witnessing track and field events or for overflow football crowds.

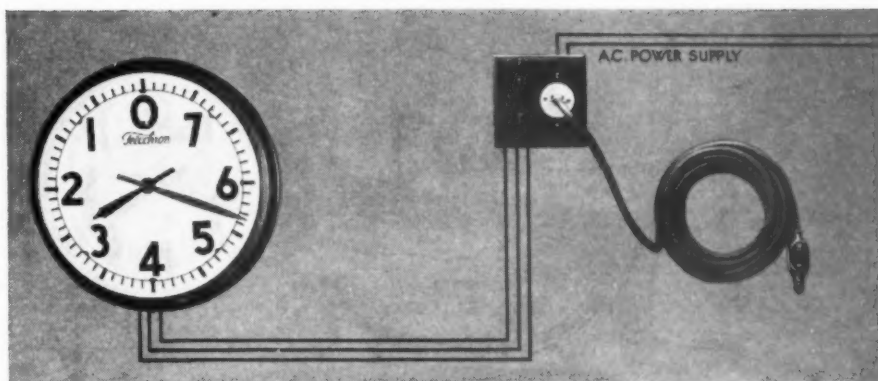
To mention other examples, the rival Texas cities of Fort Worth and Dallas each boast a fine, new concrete stadium to serve all their public schools. In Ohio, alone, the WPA built 112 grandstands. In New York State, relief workers constructed 36 new stadiums with a total seating capacity of 110,200 persons. Many stadiums such as the ones at Rutgers College, where college football was first played, and at the University of Washington, were "streamlined" through improvement projects.

Gym construction

More than 800 gymnasiums were constructed, not including those in the 5,000 new schools built by the WPA. Over 5,000 other recreational buildings also were erected, ranging all the way from the elaborate hostelry for winter sports enthusiasts at Mount Hood in Washington, to small park pavilions and shelters scattered through communities in every section of the country.

Not all the work has been confined to those sports enjoyed in the spring, summer and fall. Winter sports have reached an all-time peak in popularity, largely as the result of the skating rinks, ski trails and jumps, toboggan chutes and similar facilities built by the WPA. More boys are playing hockey than ever played before and on weekends swarms of sports enthusiasts desert crowded cities on special excursion ski trains.

At the close of 1939 the WPA had constructed some 300 miles of new ski trails, made improvements to over 50 miles more. It had built 56 ski jumps, many with tows and lifts, and reconstructed another dozen.



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Coaches' Corner

If you have something for this column send it to Bill Wood, Evanston Township High School, Evanston, Illinois.

If everything else has failed in your coaching, try writing letters to your boys. We know a coach who has been getting wonderful results with this system. Every once in a while he sends each boy a billet doux, pointing out his errors on the field, listing a few tips on conditioning and imparting a nugget or two of wisdom on the subject of the weaker sex.

Above you see our conception of how the plan works. Juliet is imploring Romeo to take her out for a double malted milk. But Romeo no can do. Coach, in Article 75, Section 23, Item 43, specifically covers the situation: No. Resisting temptation he rises (not shown in illustration) and goes home, twenty cents the richer.

In the "New Books" department on page 51, you'll find a short review of Al Schacht's hilarious new book, *Clowning Through Baseball*. Al gives you his life, in 189 breezy pages. But one of the most interesting chapters in his career—the reason why he had what amounted to a life job with Washington—is left out. The story dates back to the post-war days when Al was just breaking in with Washington.

Walter Johnson, a teammate of Al's in the early '20's, pitched his first no-hitter in Boston around 1921. He was advertised to pitch the following Sunday in Washington, but came down with a sore arm. The park was packed and none of the other Senator hurlers would dare show his face to the fans; none, that is, but Schacht. He took the mound and the fans showered him with cushions.

The story goes that Clark Griffith never forgot Al's courage and that Al could have stayed with him as long as he wanted.

Electric epee tournaments are the latest rage. Fencers of the proper wave length are wired for combat. At each touch a bell rings. (For whom the bell tolls?) If the blade sticks, the bell also helps call the police.

It's baseball now, and track, tennis, golf, swimming, and fishing. The great winter sports, basketball, hockey, and skiing, drop out of the headlines for a few months. Once more in a jittery world American athletics have served their useful purpose in providing an outlet for physical and emotional energies.

New Berlin, Ill., has a number one candidate for anybody's hall of tournament heroes. In the championship game of the regional tournament Bergschneider, lanky center for the "Pretzels," looped in 11 field goals and 8 free throws for an amazing total of 30 points. His team beat Virginia, 41-31.

Who's this guy Jack Lippert that Coach Sam Barry had to build his Southern California quintet around this winter? Couldn't be the same fellow who advisory edits *Scholastic Coach*, could it?

Among the new experiments: Two Illinois high schools, Livingston and Mount Olive, recently played a game designed to eliminate stalling. The first team scoring 25 points was declared the victor.

There has been talk among the large high schools of Chicago's Suburban League about the possibility of mass competition. Instead of one game in an evening between two schools, plans are being discussed for six or more between schools representing two towns, each town acting as host for half the games. Victory would depend upon the total score of all teams representing a town. Cross-country scoring operates upon a somewhat similar basis.

Has anyone ever tried this plan? Didn't H. V. Porter experiment with something of the sort when he was turning out championship teams at Athens, Ill.? We have a vague recollection of his teams winning three invitational tournaments simultaneously.

At Carr, Colo., there are just eight boys on the basketball squad. Reason? There are just eight boys in school. Who brought up this mass athletics' notion, anyway?

Flash! Here are the Gold Bowl results: Alaska Sourdoughs 6; Baranoff Bears 0. The Red Cross was the real winner since the entire proceeds went into the purchase of an ambulance; all, that is, except what it took to patch up quarterback Jim Mailer's broken ankle. The game was played last November. Dog sled news travels slowly.

Among the sixteen finalists in the Illinois tournament were Centralia and Streator. This was Coach Lowell Dale's twenty-fourth year at the latter school and Coach Arthur Trout's twenty-seventh at Centralia.

Centralia was sparked this year by the brilliant Dwight Eddleman, holder of the new state high school scoring record of 888 points. This does not include the points he scored in this year's tournament games. We haven't had time to add them up as yet, but his grand total must be close to 1,000.

What is the most unusual nickname for a school team you know? We have mentioned the "Old Abes" of Eau Claire, Wis., and the "Pretzels" of New Berlin, Ill. Someone else has tossed in the "Ichabods" of Washburn College. What have you to offer? (*Scholastic*, the national high school weekly, ran an interesting article on high school nicknames entitled, "What's in a Nickname?" in its February 3 issue.)

Did Helen Jacobs ever finish that historical novel? There was a rumor afloat last fall that she had taken up temporary residence at historic Williamsburg, Va., to gather first-hand material.

Arch Ward tells of the nervous prep coach of a Montana town who watched his team go from bad to worse until finally he yelled to a substitute, "Go in for that dumbbell!" There was a pause and then the answering query, "Which one, Coach?"

Not that the fate of the nation depends upon it, but the number of basketball teams that lined up for the opening guns of the Indiana tournaments was 777.

Jim Thynne, who won the Iowa title for tiny Melrose almost single handed a few years ago, got in the way of a Bradley Tech pass while he was playing for Creighton University this winter and batted it from near the center line into the wrong basket. Could the accident be termed "over-aggressiveness on defense"?

Coach Fred Graham of Camp Hill, Pa., has a similar incident to relate that occurred while he was coaching Slippery Rock High School.

"Slippery Rock was playing Karns City, a bitter rival, and the score stood 18-17 in favor of Slippery Rock with only thirty seconds to play. In a last frantic effort to score, a Karns City forward threw a long one at the basket. The ball caromed off the backboard, hit a Slippery Rock player on the head and bounced through the bucket as the gun went off!"

"It's getting almost monotonous," writes Coach Don Fossatti of Athens, Ore. "For the past three years we have won the East-End Umatilla County grade school championship, each time by defeating Central Grade School of Milton by one point in the final game, 14-13, 10-9 and 18-17."

Coach Art Gervais of Watersmeet, Mich., has had no victory worries to trouble him since he introduced basketball two years ago. It wasn't until near the end of this past season that his boys were able to present him with a win, a 21-20 triumph over Ewen. It takes a little time to get started.

The fans of Russellville, Ark., are proud of Coach Wallace Bailey's record during his seventeen years of service. From a student body averaging 275 each year he has developed outstanding teams in football, basketball, track and golf that have been victorious in more than seventy-five per cent of their contests.

Congratulations also to Coach Steve Baltic, L'Anse, Mich., Coach Joe Miheve, Palmer, Mich., and Coach Tom Bonino, Jackson, Minn., for their highly successful tournament records. During their own high school playing days all were members of the basketball squad at Wakefield, Mich.

For many years Michigan has had tournament participants divided into four classes: A, B, C and D, according to total enrollment of the schools represented. An E class was added this year for teams of small enrollment which had never experienced tournament success in past years. The plan drew much favorable comment.

According to Gracie Allen, Biff Jones was "tackled to death" when his Cornhuskers chased him just prior to the Rose Bowl game. **BILL WOOD**

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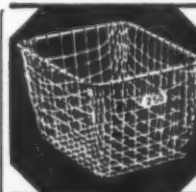
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CALIFORNIA'S COACHING WORKSHOP—
Monterey, Calif. Aug. 7-15. H. R. Young-
man, director. Staff: Buck Shaw, Sam Bar-
ry, Brutus Hamilton, Chuck Keeney, Hal
Orion.

COLORADO H. S. COACHES' ASSN. —
Denver, Colo. Aug. 18-23. N. C. Morris,
director. Staff: Tad Wieman, Fritz Crisler,
Dana X. Bible. See advertisement on page
48.

COLORADO ST. COACHING CONF.—Ft.
Collins, Colo. Aug. 11-15. H. W. Hughes,
director. Staff: H. W. Hughes, J. F. Wag-
ner.

DAYTONA BEACH—Daytona Beach, Fla. Aug.
18-23. G. R. Trogon, director. Staff: Frank
Leahy, Adolph Rupp, Bobby Dodd, Tom
Lieb, Moon Mullins.

DUKE UNIVERSITY—Durham, N. C. July 21-
26. Wallace Wade, director. Staff: Duke's
Varsity Coaches.

EASTERN COACHING CLINIC—Brooklyn,
N. Y. Aug. 18-23. Clair Bee, director. Staff:
Clair Bee, John Lawther, Frank Keane, Dr.
H. C. Carlson, Dave McMillan, Chick
Davies, Ed Kelleher, Pat Kennedy, Hooks
Mylin, Kurt Lenser, Joe Pipal. See adver-
tisement on page 49.

EASTERN PA. FOOTBALL—Pottsville, Pa.
June 16-20. T. T. Allen, director. Staff:
Paul Brown, Ray Morrison, John DaGrosa.
See advertisement on page 48.

INDIANA BASKETBALL — Logansport, Ind.
Aug. 18-22. Cliff Wells, director.

INDIANA UNIVERSITY — Bloomington, Ind.
July 21-23. Z. G. Clevenger, director.

KANSAS COACHING SCHOOL — Topeka,
Kan. Aug. 18-23. E. A. Thomas, director.

LOUISIANA STATE U.—Baton Rouge, La.—
Aug. 4-9. B. S. Walker, director. Staff:
Jack Meagher, Matty Bell, Chuck Taylor.

NAMPA COACHING SCHOOL — Sun Val-
ley, Ida. Aug. 19-24. Harold White, di-
rector.

NEBRASKA COACHING SCHOOL — Lin-
coln, Neb. Aug. 18-21. Major L. M. Jones,
director. Staff: Ralph Jones, W. H. Rose-
lius, Football Staff of U. of Nebraska.

N. Y. HERALD-TRIBUNE—New York, N. Y.
Aug. 25-29. Lou Little, director.

NORTHWESTERN UNIVERSITY — Evanston,
Ill. Aug. 18-30. K. L. Wilson, director.
Staff: Lynn Waldorf, Dutch Lonborg, Bud
Foster. See advertisement on page 49.

OHIO STATE UNIVERSITY — Columbus, O.
June 23-Aug. 29. L. W. St. John, director.
Staff: Paul Brown, Wesley Fesler.

OKLAHOMA COACHES CLINIC—Oklahoma
City, Okla. Aug. 26-30. E. C. Hafer, di-
rector. Staff: Hank Iba, W. Jones.

PENN STATE COLLEGE—State College, Pa.
June 30-Aug. 8. Dr. Lloyd M. Jones, direc-
tor. Staff: Bob Higgins, John Lawther, Bill
Jeffrey, Eugene Wettstone. See advertise-
ment on page 48.

TENNESSEE COACHES ASSN. — Johnson
City, Tenn. Aug. 11-16. W. G. Siler, direc-
tor.

TEXAS H. S. BASKETBALL — Denton, Tex.
June 23-27. H. G. Shands, director.

TEXAS H. S. FOOTBALL — Houston, Tex.
Aug. 4-9. Bryan Schley, director. Staff:
Frank Leahy, Jess Neely, Fritz Crisler.

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UNIVERSITY OF COLORADO—Boulder, Colo. June 16-July 18. Harry Carlson, director. Staff: Dr. C. C. Cowell, Frosty Cox, Frank Potts, Jim Yeager.

UNIVERSITY OF ILLINOIS (School of Physical Education)—Urbana, Ill. June 26-Aug. 9. S. C. Staley, director.

UNIVERSITY OF IOWA—Iowa City, Iowa. June 7—Aug. 1. E. G. Schroeder, director.

UNIVERSITY OF KENTUCKY—Lexington, Ky. Aug. 11-16. M. E. Potter, director. Staff: Frank Leahy, Adolph Rupp, Ab' Kirwan, Bernie Shively. See advertisement on page 48.

UNIVERSITY OF NO. CAROLINA—Chapel Hill, N. C. R. A. Fetzer, director. Staff: Ray Wolf, Bob Fetzer, Bill Lange, P. H. Quinlan, John Vaught.

UNIVERSITY OF TENNESSEE—Knoxville, Tenn. June 9-July 16. A. W. Hobt, director. Staff: University's Physical Education Staff.

UTAH STATE AGRIC. COLLEGE—Logan, Utah. June 9-13. E. L. "Dick" Romney, director. Staff: Clark Shaughnessy, Frosty Cox. See advertisement on page 49.

WASHINGTON ST. COLLEGE—Pullman, Wash. June 23-Aug. 1. J. Fred Bohler, director.

WEST VIRGINIA UNIVERSITY—Morgantown, W. Va. July 28-Aug. 2. Alden W. Thompson, director. Staff: Fritz Crisler, Clair Bee, Bill Kern.

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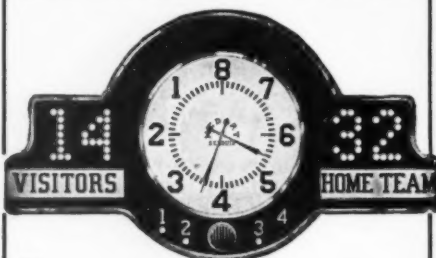
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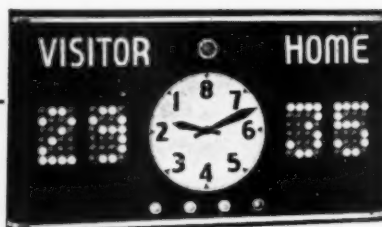
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Basketball Game

By Frank Colucci

Frank Colucci, physical education director at McKinley Junior High and Elementary School in Flint, Mich., and inventor extraordinary on the side, bobs up this month with a new game—a variation of basketball which he believes eliminates some of the shortcomings of the regulation game.

THE game of Plus and Minus Basketball was designed with two specific objectives in mind: (1) to open up the regulation game, and (2) to work out a sounder and more equitable scheme of penalizing infractions.

The Plus and Minus game attempts to mete out justice with a more balanced system of penalizing. When a player commits a foul, his team automatically loses one point from the running score for each foul committed. The scorekeeper simply lops a point off the score and the game continues with a jump ball at center.

With one very important exception, the rest of the game is regulation basketball. The playing court is the same except that it is divided into three courts as in girls' three-court basketball, and has a center line at midcourt. The court is marked off in zones, depending upon the size of the floor.

The value of a field goal depends upon the zone from which the ball is shot. For example, a basket from inside the foul lane counts one point, a shot from the foul circle two points, all goals from past the center of the floor five points, etc.

The last contact either or both feet makes with the floor determines the zone. If the player is touching the division lines of two zones, the zone in which the greater part of the foot or feet is resting is considered his home base.

After each score, the ball is put into play from any point out of bounds at the end line, by the team scored against.

Junior high school intramural games may best be played without the three- and ten-second rules in force.

Alert basketball men will detect one important weakness in the setup of this game. The system of scoring places a premium on long shooting rather than on scientifically working the ball in for layups. However, as an interesting and novel variation of basketball for boys of junior high school age, the game pays good dividends. Insofar as high schools are concerned, the game has much practical value in the intramural program and as a practice medium for the varsity.

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New Books on the Sportshelf

FIFTY YEARS OF COLGATE FOOTBALL. Edited by Dr. Ellery C. Huntington. Pp. 271. Illustrated—photographs. Huntington (N. Y.): Colgate Athletic Council.

THE first fifty years of football at Colgate University are reviewed in this handsome volume published by the school's athletic council. The period from 1890 to the turn of the century is covered by the late John W. Peddie, who was an influential figure in the organization of the very first Colgate team back in 1890. The editor, Dr. Huntington, director of athletics from 1900 to 1935, covers the years from 1900 to the advent of Andy Kerr in 1929, and Coach Kerr himself carries the ball through 1939.

Each of Colgate's football teams is reviewed in a separate chapter, which contains the team's record, notes on the personnel and a team photograph. An inspirational, absorbing account of Colgate teams and Colgate men, the book should make a handsome souvenir to alumni and former players.

CLOWNING THROUGH BASEBALL. By Al Schacht. Pp. 189. Illustrated—cartoons. New York: A. S. Barnes & Co. \$1.

BASEBALL fans who enjoy a good story ought to have a lot of fun reading *Clowning Through Baseball*. Al Schacht, the Clown Prince of Baseball, is a genuinely funny man and has put more fun into the national pastime than anybody you can name.

His wide travels, deep knowledge of baseball (he used to play and coach) and hilarious pantomimic shows on the diamond form the background for the beguiling stories he tells. Some of them you may have heard before; most, however, appear to be new. Through them all stalk the great figures with whom Al has rubbed, and bent, elbows.

The book is signed by Al, but its title page gives credit where credit is due. The "grammar and adjectives" are by Murray Goodman, there is a forward by John "Information Please" Kieran, illustrations by the famous sports cartoonist, Willard Mullin, and an acknowledgment to Arthur Mann, who "threw out the first ball and kept it rolling."

This rather awesome collaboration has managed to project some of Al's personality onto the pages. Anyone who has ever seen him strut his stuff will recognize him, especially in Mullin's drawings.

PLAY BALL (Advice for Young Players). By Al Chapman and Hank Severeid. Pp. 227. New York: Harper & Bros. \$1.50.

AS BILL McKECHNIE, manager of the world's champion Cincinnati Reds, observes in the foreword, here is a book that gives "the sort of

instruction that every manager would like to give personally to every young ball player."

The authors, both scouts for the Reds, tell what they look for in a player. In simple, straightforward fashion they cover the rudiments of the game: straightaway hitting, defensive play, individual positions, running bases, and various other phases.

They enliven the narrative with many personal and illustrative anecdotes about the greats and near-greats whom they have known and with many of whom they have played.

Although the book is aimed primarily at young players—coaches and fans as well will find it exceedingly interesting and informative.

BARNES DOLLAR LIBRARY: Rifle Marksmanship. By William L. Stephens, Jr. Pp. 88. Illustrated—drawings and diagrams. New York: A. S. Barnes & Co.

COACHES of high school and college rifle teams will find Lieutenant Stephens' book a practical guide to the art of shooting.

The author, a former national champion, describes and illustrates the technique of rifle marksmanship under the following headings: The Target Rifle; .22 Caliber Long Rifle Ammunition; The Sporting Scope; The Shooting Coat and Glove; The Score Book; The Rifleman's Kit; Regulation Shooting Positions; Sights, Sighting and Aiming; and Trigger Squeezing, Breathing and Holding.

He also gives a number of fine points on the cleaning and care of the rifle and on target reading and wind direction. A chapter on range routine rounds out the text.

For \$1 who can ask for anything more?

SPORTS AND GAMES. By Harold Keith. Pp. 292. Illustrated—photographs and diagrams. New York: Thomas Y. Crowell Co. \$2.50.

LIKE Chapman and Severeid, author Keith fixes his sights on the athlete more than the coach. What athlete? Well, almost any kind. The book is encyclopedic in scope.

Sixteen sports are covered: badminton, baseball, basketball, bowling, boxing, football, golf, handball, ice hockey, six-man football, softball, swimming and diving, tennis, track and field, volleyball, and wrestling.

Each of these sports constitutes a chapter of the book. The author gives the history of the sport and a good technical analysis of the fundamental techniques. He spices each chapter with interesting anecdotes.

Of particular value to the reader are complete directions and drawings for the layout of fields, courts, diamonds, rinks, and rings. The more important skills are illustrated with action photographs.

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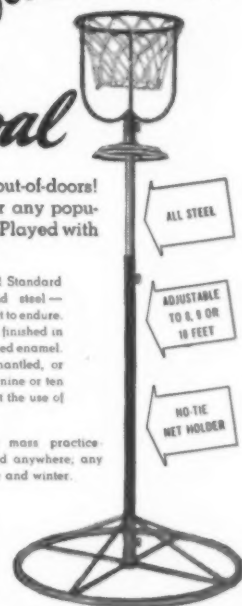
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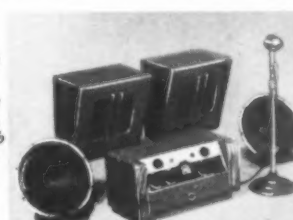
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CARE OF INJURED ATHLETES

By Floyd A. Rowe

As directing supervisor of the bureau of physical welfare in Cleveland, chairman of the National Basketball Committee and a figure of importance in the National Federation, Floyd A. Rowe is recognized as one of the foremost athletic administrators in the country. His article is the first of two on the administration of the care of injured athletes in high school. The treatise is offered, not as a complete solution to the problem, but as a means of acquainting school men with certain procedures which have been successfully adopted by the seventeen schools belonging to the Senate League in Cleveland.

THE administrative problem connected with the care of injured high school athletes has always been, and probably will continue to be, one of interscholastic athletics' most vexing problems.

First there is the question of legal responsibility.* From past action of the courts we know that in general, boards of education, individual high schools and coaches are not legally responsible for these accidents. That is, unless they can be traced to personal negligence on the part of the individual supervising the boys at the time of the accident.

Furthermore the parents of any boy may not, by signing any ordinary document, release a coach, teacher or executive from legal responsibility.

In other words, no parent may legally sign away the rights of a minor.

To many sincere educators there is another responsibility involved—that of moral responsibility. Certainly no high-minded coach, teacher or school executive can help but feel a moral responsibility when boys competing on teams which represent his school or city are injured.

It was this feeling of moral responsibility that was largely instrumental in the organization and administration of the Cleveland High School Medical Benefit Injury Fund. By means of this fund, the principals of the seventeen Senate schools in Cleveland make an attempt, at least in part, to discharge their moral responsibility to the injured boys.

Other cities and states have sought to discharge this moral re-

sponsibility by means of insurance. (Later on, we will briefly discuss the merits of the two methods.)

In the organization of any system which attempts to take care of the injured athlete because of the moral responsibility involved, one is confronted immediately with certain hard and fast financial considerations. These may be reviewed under the following headings:

1. Ability of the parents to pay the medical bills incurred.
2. The degree of acceptance of responsibility by charitable organizations.
3. The earnings of the athletic program.
4. Other sources of financial assistance.

These are all closely related; namely, in any community where the parents are able to defray the hospital and medical bills incurred by their sons, there is little or no need for any acceptance of responsibility by charitable organizations. The athletic earnings of a school in a community of this sort would be sufficient to pay for the injuries.

Parents' option

In every community there will be found a certain group of parents who not only are financially able to defray the hospital and medical expense, but who insist upon doing so for ethical reasons. Any program, then, looking toward the care of injured athletes should be set up in such a way as to give the parents of any of the children complete option and opportunity insofar as the selection of medical care and payment are concerned.

In many communities the acceptance of the responsibility by charitable organizations is the only means by which certain boys are able to secure adequate attention. Were it not for these fine institutions, many a high school athlete would go through the remainder of his life crippled because of his inability to secure proper and immediate attention.

Fortunately, in most athletic injuries, hospitalization is unnecessary. The problem becomes primarily one of dealing with the medical profession in terms of either office or home calls. In most instances, the injury is of such a nature that any qualified physician can give the necessary attention.

*It is unnecessary to delve very deeply into this. A number of years ago F. R. Wegner, superintendent of schools at Roslyn Heights, N. Y., made a presentation on the legal liability for injury to athletes before one of the meetings of the National Federation. Following this Harry N. Rosenfield wrote a book, *Liability for School Accidents*. This book and Mr. Wegner's presentation cover every possible angle of the legal question.

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On the other hand, there are injuries which require specialized treatment and the free use of x-rays. Such service really requires the attention of a specialist. If no specialist is available, a younger practitioner, who may once have been an athlete himself, usually is sufficiently interested to give the required attention.

There is still one other angle which requires careful thought. Where parents are responsible for medical attention, or even where schools are paying from their own funds, there is frequently a tendency to minimize any injury and to "wait until tomorrow" to see if the boy doesn't get better without sending him to the doctor.

In addition to this human failing, there is the situation where neither the boy nor the coach thinks the injury is worth attention. Neglect in attending to one such injury cost a Cleveland boy many weeks in the hospital, twenty-eight blood transfusions and six operations.

Therefore, the availability of medical service and the cooperation of school authorities in keeping tabs on the boys, no matter how slight the injury may be, is a highly desirable factor in the care of athletic injuries.

Choice of physician

We come next to the consideration of medical and dental problems. The first problem here deals with the right of the parents or the guardian to select the attending physician. This freedom of selection cannot be overstressed. Certainly no one in any responsible school position ever has the right to interfere with parents or guardians in their prerogative to select a physician.

At the same time, school authorities also have certain rights in this matter. If the school authorities are taking care of the expense in any one of the various ways possible, and the parents insist upon the school defraying the expense, then certainly the school has the right to dictate as to which particular physician the injured boy must go.

There is another item entering the picture at this point which is worth consideration. When the parents are accepting financial responsibility and the physician of their choice permits the boy to return to competition, the school certainly has the right through the physician of its choice to concur or disagree with the diagnosis and treatment of the physician employed by the parents.

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The next consideration under this topic is that of the attitude of organized medicine and dentistry toward the selection of a school or team physician. There is no denying that this may in a sense become contractual medicine or dentistry. Both professions are violently opposed to all forms of contractual service.

Contract necessary

However, where the school is taking care of the financial end, some form of contract is necessary to limit expenditures. We are also dealing with a certain human characteristic to which doctors and dentists are not immune; namely, when someone else is "paying the freight," it is remarkably easy to run up an account for services.

In other words, doctors who are being paid on an office or home call basis, without being subjected to any charge of dishonesty or without any thought on their part of being unprofessional, can continue to have the boy call at their offices or go to the boy's home, when such calls are not absolutely necessary.

What has been said of the physician, in some measure, is also true of the dentist. However, there is a difference in the two situations, since dental attention frequently involves longer and costlier services. It is quite possible and entirely within the range of professional ethics, to arrive at a satisfactory understanding with a thoroughly reputable dentist to care for all such cases at a sharp reduction over the ordinary fees.

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The next consideration is the limitation of services. Who should be

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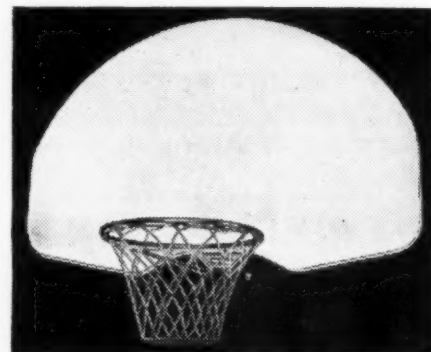
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eligible for care at school expense; and to what extent should this care be given?

The trained social worker would say that only those boys on the squad whose parents are unable to defray such expense should be eligible for care at the school's expense. Such an attitude is perfectly logical, perfectly reasonable and, at the same time, probably wholly impossible to administer.

Schools, in general, have no way of social servicing families. Therefore, the most practical scheme is to extend the care to all those pupils whose parents wish to take advantage of it.

This method has one decided advantage which already has been touched upon slightly. Where boys are required to go to their family physicians, such visits (either office or home call) are charged for by the call. Therefore, the boy is not apt to go unless either he or his parents consider the matter serious enough. Few injuries are too slight to be overlooked. Where care is unrestricted, the coach and other school officials are free to consult the physician on any kind of case, no matter how slight it may be.

Extent of care

To what extent shall care be given? Care should be given to the extent it can reasonably be financed. This does not mean that care should ever be limited by the economic situation. It does mean very decidedly, however, that the school or other organization must limit its acceptance of financial responsibility to its absolute ability to pay. If care is required beyond this limit, then either the parents or some charitable organization must be sought.

In the Cleveland situation, the practical limits are defined about as follows: Every parent has the right to select the type of medical service for his boy in case of injury. If such option is exercised, the parent then becomes financially responsible for the payment of bills. Should the parent refuse this responsibility, the boy is given complete medical care at the expense of the central fund.

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| MERCURY EQUIP. (54) | <input type="checkbox"/> Information on Rubber-Covered Softball Bats | WILLIAMS IRON WORKS (47) | <input type="checkbox"/> Information on Steel Grandstands |
| <input type="checkbox"/> Posture Chart | SCHUTT MFG. CO. (54, 56) | WILSON SPORTING GOODS (8) | <input type="checkbox"/> Catalog |
| O'SHEA KNITTING MILLS (6) | <input type="checkbox"/> Information on Backboards, Uni-Goal | W. F. YOUNG (32) | <input type="checkbox"/> Muscle Chart |
| <input type="checkbox"/> Catalog, Football Equip. | SEAMLESS RUBBER (24) | | |
| PENNSYLVANIA SALT MFG. CO. (29) | <input type="checkbox"/> Booklet, "My Method of Taping Athletes" | | |
| <input type="checkbox"/> Samples: Perchloron, Tilite | WILLIAM SKINNER & SONS (27) | | |
| PETERSEN & CO. (43) | <input type="checkbox"/> Information on Fabrics | | |
| <input type="checkbox"/> Catalog on Gym Mats, Football Dummies, Wrestling Mats | SOLVAY SALES (37) | | |
| J. E. PORTER CORP. (50, 54) | <input type="checkbox"/> Booklet on How to End Dust and Weeds | | |
| <input type="checkbox"/> Illustrated Folder on New Fan-Shape Backboard | A. G. SPALDING (1) | | |
| <input type="checkbox"/> Circulars on Gym Equipment | <input type="checkbox"/> Football Catalog | | |
| <input type="checkbox"/> Information on Tennis, Track, Baseball Equipment | STANDARD BRANDS (5) | | |
| | <input type="checkbox"/> Facts on Bread | | |
| | G. H. TENNANT (53) | | |
| | <input type="checkbox"/> Bulletin on Care of Floor | | |

NAME _____ POSITION _____
(Principal, coach, athletic director, physical director)

SCHOOL _____ ENROLLMENT _____

CITY _____ STATE _____

No coupon honored unless position is stated

April, 1941

An important complication enters here. Sometimes the parents are unable to defray the cost of this continued hospitalization. In this contingency the boy should be admitted to the hospital as a charity case under the care of the staff, rather than the medical director of the fund.

The reason for this is simple. At the expiration of the seven-day limit the boy must necessarily become a staff case, which means that the physician originally in charge has to turn the case over to the hospital staff. This is not good medical procedure and should be avoided wherever possible.

The necessity for the limitation of hospitalization in Cleveland became apparent when the fund was nearly wrecked in its first year by a highly debatable case of blood poisoning. That is, no one could determine definitely whether the blood poisoning was attributable to the injury. That the boy was an athlete and that he did have blood poisoning were unequivocal facts. But whether or not the athletic participation was responsible for the poisoning was most debatable.

At any rate, this boy was admitted to a hospital and confined there for twenty-eight weeks, thereby making it necessary for the fund to borrow several hundred dollars to pay its obligation for that year.

Regardless of whether the cause for extended hospitalization was athletic or not, it became apparent immediately that the schools could not accept the full responsibility incident to hospitalization past one week's time.

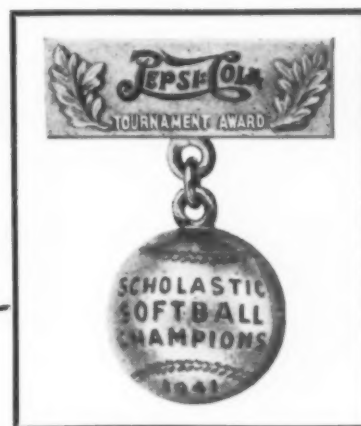
We are constantly emphasizing the fact that it is highly desirable for the parents themselves to see that their boys get the proper medical attention. The rights of the parents to do this, and their responsibilities if they do, are outlined on the athletic registration card which every parent must sign before his boy may participate in the interscholastic program.

(Next month's installment will cover dental injuries, physical condition tests and the differences between the Cleveland and the athletic insurance plans of accident benefits.)

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(insert date)

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Name of School Address

City State Enrollment of school: boys girls



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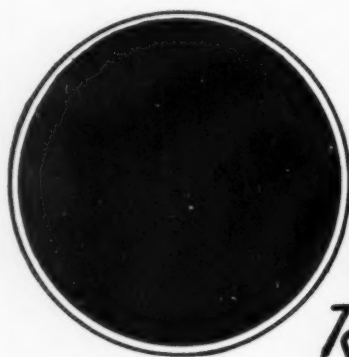
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